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ABSTRACT

One of a series of eleven curriculum manuals which cover the four transportation topics of public transportation, transportation and the environment, transportation safety, and bicycles for elementary, secondary, and adult levels, this manual covers the transportation safety topic for grades 9-12. It contains forty-three learning activities grouped into eleven mini-units. Each mini-unit consists of a lesson plan component and an individual learning activities component. The first mini-unit provides a survey of issues related to transportation safety; the rest are as follows: understanding driving habits, learning about safety belts, drinking and driving, buying a car, maintaining a car and coping with breakdowns, promoting transportation safety through consumer/citizen action, learning how to be safe while boating, learning about emergency vehicles, being safe on various vehicles, and doing supplementary research on transportation safety. A final section offers additional activities that may be used to evaluate or supplement evaluation of an activity or mini-unit. Also included are references for further study resources, suggestions for integrating units with other subjects in the curriculum, and for reproduction of role profiles, game boards, maps, and other distributable materials. (A curriculum guide, CE 014 028, is also available for use with the manuals.) (TA)

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GETTING THERE!

MINI-UNITS AND LEARNING ACTIVITIES ON TRANSPORTATION SAFETY

for Grades 9 through 12

by

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Cambridge, Massachusetts

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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FOREWORD

TEACHING TRANSPORTATION: AN OVERVIEW

> Nearly everything Americans do, from mailing a postcard to walking on the moon, depends on transportation. Transportation is essential for the supply of food, clothing and shelter, for national defense and employment, for education and recreation, for the international exchange of goods and services.*

While every American is provided with the necessities and amenities of modern life through an intricate freight-carrying network, we think of transportation most readily in terms of moving people, not products, and for good reason. Millions of us commute to work every day by car, bus, train, or subway. Moreover, 21 million youngsters travel on school buses every day. Americans use a variety of transportation modes for other purposes, including shopping, recreation, tourism, and moving. The average family changes residence once every five years and makes use of one of the many thousands of for-hire companies that provide domestic surface transportation. In addition, Americans travel more than 1.7 trillion miles by passenger cars or trucks every year, while AMTRAK's 250 trains cover 26,000 miles and service 484 communities with more than 7 million people annually using the New York to Washington run alone. There are also 950 intercity bus companies whose 20,600 vehicles travel 1.1 billion miles each year, while commercial aircraft transport over 210 million passengers annually.

Americans are highly dependent on transportation services for recreation purposes, too. Not only are vehicles used to get to places of entertainment, many vehicles are themselves forms of recreation. For example, there are approximately 7.3 million registered boats in the country, not counting rowboats and canoes. Seven and one-half million motor homes, truck campers, and travel and camping trailers are on the roads. Snowmobiles, dune buggies, and home-built vehicles have become widespread in the past few years.

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*John Burby. *The Great American Motion Sickness.* (Little, Brown and Co., Boston: 1971), page 3.

Americans also relax on two-wheeled vehicles: there are 100 million bicycles and nearly five million motorcycles in the country, many of which are used for commuting as well as recreation.

The most frequently used form of transportation in the nation, however, is walking. We sometimes forget that pedestrians utilize the single most common mode of travel.

Finally, the overwhelming importance of transportation in our lives must be assessed not only in terms of movement of goods and people, but also in relation to the millions of jobs transportation provides. Transportation facilities and vehicles require manufacturers, builders, operators, and mechanics, while they also create thousands of employment opportunities in related industries, from foundries which produce steel for vehicles to insurance companies which provide automobile insurance to health care systems which treat travel-related injuries.

For all these reasons it is important for students to become aware of transportation as it affects their lives, to learn to be wise purchasers and users of transportation goods and services, and to develop skills to promote constructive use and appropriate expansion of all forms of transportation in their communities and beyond.

In particular, consumers should become informed about (1) improving and using public transportation, (2) harmonizing the environment and transportation, (3) understanding transportation safety, and (4) perceiving the importance of bicycling. By examing these four major topics, students will learn, for example: to identify the best methods for commuting to school and work; to travel, when possible, in ways which minimize adverse transportation effects on the environment; and to purchase and use transportation vehicles and facilities with maximum safety.

CURRICULUM MATERIALS AVAILABLE

This Manual is one in a series of volumes which treat at different grade levels the four transportation topics of Public Transportation, Transportation and Environment, Transportation Safety, and Bicycles. These volumes were developed by Abt Associates Inc. under contract to the U.S. Department of Transportation, Office of Consumer Affairs. The following eleven Manuals and curriculum guide on transportation consumer education are currently available:

- TRAVEL ON! Mini-units and Learning Activities on Transportation for Grades K-3
- TRAVEL ON! Mini-units and Learning Activities on Transportation for Grades 4-6
- Transportation Consumer Education for Adults: Mini-units and Learning Activities
- PEDAL ON! Mini-units and Learning Activities on Bicycling for Grades 6-9
- PEDAL ON! Mini-units and Learning Activities on Bicycling for Grades 9-12
- RIDE ON! Mini-units and Learning Activities on Public Transportation for Grades 6-9
- RIDE ON! Mini-units and Learning Activities on Public Transportation for Grades 9-12
- GETTING THERE! Mini-units and Learning Activities on Transportation Safety for Grades 6-9
- GETTING THERE! Mini-units and Learning Activities on Transportation Safety for Grades 9-12
- Transportation and the Environment in Harmony: Mini-units and Learning Activities for Grades 6-9
- Transportation and the Environment in Harmony: Mini-units and Learning Activities for Grades 9-12
- Transportation Consumer Education: A Curriculum Guide for Grades K-12 and Adult

These volumes may be ordered from:

Abt Publications
55 Wheeler Street
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The Federal Aviation Administration (FAA)

The Federal Highway Administration (FHWA)

The Federal Railroad Administration (FRA)

The National Highway Traffic Safety Administration (NHTSA)

The Office of Education, Bureau of Occupational Education (HEW/OE)

The United States Coast Guard

The Urban Mass Transportation Administration (UMTA)

Many individuals within these agencies were very helpful in pointing out biases in the materials, errors of fact, and pedagogical weaknesses.

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Despite the considerable assistance from these sources, only the authors are in any way responsible for errors, approaches, and biases in the final product.

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INTRODUCTION

WHAT'S IN THE MANUAL

Getting There! for grades 9 through 12 contains 43 learning activities grouped into 11 mini-units. Each unit has two components:

1. *A lesson plan* which provides a suggested day-by-day sequence of learning activities and goals, and
2. *Individual learning activities* which describe in detail how to implement the exercises suggested in the lesson plan.

Thirteen spirit masters are also provided at the end of the Manual for use with eleven different activities.

The first mini-unit provides a survey of issues related to transportation safety, while the rest focus on a specific transportation safety issue. The eight activities in the survey mini-unit all reappear in subsequent units. Brief descriptions of all the activities in the Manual are provided on pages 14, 15, and 16.

A final section of activities is called Assessment Activities. This section offers additional activities that may be used to evaluate or supplement your evaluation of an activity or an entire mini-unit.

Also included at the end of the volume is a bibliography of suggested teacher and student materials.

HOW TO USE THE MANUAL

This Manual is designed as a resource volume of activities and background materials to be used in ways which are compatible with your needs and those of your students.

The mini-units and individual learning activities may be integrated into your curriculum at many points and to meet many purposes.

- In *consumer education and home economics*, the activities are useful in view of their treatment of transportation issues from the perspective of the consumer.
- In *social studies*, the activities enhance learning about one's community. They aid in understanding the importance of citizen participation in government, and they broaden the study of transportation itself.
- *Health and safety units* are obvious points of entree because of the Manual's entire concern with safety issues.
- *Language arts* skills are integral to all the mini-units, since the activities are designed to develop and reinforce students' capacities to listen, speak, write, observe, and analyze.

You will find that the introduction to each mini-unit sums up the rationale for teaching that topic in your classroom. After reading these mini-unit instructions, you will have the background for deciding which mini-unit or mini-units you will teach. In examining the mini-units, you should feel free to make substitutions or deletions in the mini-units and in the learning activities whenever this is necessary to meet your teaching objectives.

Here are several methods for adapting the mini-units and learning activities to teach transportation safety in your classroom.

You can read the lesson plans for all mini-units and *select one or more lesson plans* to integrate into your course. Having made your selection, read the detailed activity descriptions which follow the lesson plans for specific instructions on implementing the activities in the mini-unit or units you have chosen. This method of using the Manual is most appropriate if you wish to concentrate in some depth on one or more specific aspects of transportation safety.

If you prefer to provide your students with a survey of issues related to transportation safety touching on several aspects of the field, you can *implement the first mini-unit* which provides just this type of overview. For your own information, you may wish to skim the lesson plan of the other mini-units for additional materials that will enrich your survey presentation.

You can *develop your own mini-unit* consisting of activities that you select from several mini-units in the Manual.* If you wish to do this, read the capsule descriptions of each activity provided on the chart on the following pages. This chart will show you, at a glance, the teaching method and content of each learning activity offered in the Manual.

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*You can also have your students leaf through the activities and select ones they would like to pursue individually or in small study groups.

Activity #	Activity Description	Class Time (periods)
	Mini-unit 1	
	Surveying the field of transportation safety	
1	Students identify and then discuss common driving habits that are dangerous.	½-1
2	Students poll other students in the class about why they do or do not wear safety belts.	1
3	Students learn the facts about drinking and driving and discuss them.	1
4	Students discuss the safety considerations to keep in mind when buying or maintaining a new or used car.	1-1½
5	Students identify pedestrian hazards and formulate appropriate community countermeasures to enhance pedestrian safety.	1½-2
6	Students singly or in groups research what travelers should do and not do in order to enhance their safety on airplanes, trains, buses, and subways.	1-2
	Mini-unit 2	
	Understanding driving habits	
7	Students identify and then discuss common driving habits that are dangerous.	½-1
8	Students role play drivers and passengers in situations that involve safe (or unsafe) driving habits.	1
9	Students perform science experiments which illustrate automobile driving safety considerations and issues.	1-2
10	Students discuss some of the reasons which people give for driving dangerously and identify methods by which drivers can be encouraged to adopt safe driving habits.	1-2
11	Students act out the parts in the script of "Fleming vs. Rondo--A Hearing." Then, without a script, they complete the hearing and try to come to a conclusion.	1½-2
12	Students evaluate a pedestrian accident and determine the causes and responsibility.	1-2
	Mini-unit 3	
	Learning about safety belts	
13	Students poll other students in the class about why they do or do not wear safety belts.	1
14	Class discusses how useful safety belts are in reducing injuries and fatalities in automobile accidents.	1-2
15	Students answer "Dear Abby" letters from classmates on safety belt problems and implement a plan to persuade a friend or relative to use safety belts.	1-2
	Mini-unit 4	
	Drinking and driving	
16	Students learn the facts about drinking and driving and discuss them.	1
17	Students discuss best course(s) of action if a friend or relative is about to ride with a driver who has been drinking excessively.	1-1½
18	Students role play situation in which a friend who has been drinking excessively is about to drive.	1
	Mini-unit 5	
	Buying a car	
19	Students discuss the safety considerations to keep in mind when buying a new or used automobile.	½-1
20	Students role play purchasing "buying" cars.	½-1
21	Students analyze automobile advertisements and discuss why safety considerations are not usually included in the sales "pitch."	1
22	Students discuss America's alleged "love affair" with the automobile and how it may relate to automobile purchase and driving safety.	1

Activity #	Activity Description	Class Time (periods)
	Mini-unit 6	
	Maintaining a car and coping with breakdowns	
23	Students question automobile mechanics concerning regular maintenance that car owners themselves can perform or should have garages perform in order to keep their cars running safely.	2-3
24	Students poll each other, or their parents, or neighbors, about automobile breakdowns they have had, then formulate safety guidelines for breakdown situations.	2-3
	Mini-unit 7	
	Promoting transportation safety through consumer/citizen action	
25	Class discusses the merits of different types of personal, social, and political actions citizens can take to promote automobile safety.	1½-2
26	Students role play funding agencies discussing priorities for financing different types of community safety programs.	½-2
27	Students identify pedestrian hazards and formulate appropriate community countermeasures to enhance pedestrian safety.	1½-2
	Mini-unit 8	
	Learning how to be safe while boating	
28	Class discusses boating safety.	1
29	Students read the beginning of a story about peer pressure and boating safety. Students supply the ending themselves.	1
30	Students and teachers discuss why fueling a motor boat is hazardous and what steps need to be taken to make it a safe procedure.	1
	Mini-unit 9	
	Learning about emergency vehicles	
31	Class discusses the nature of emergency vehicles.	½-1
32	Students determine the time needed for an emergency vehicle to reach a given point in their community.	2
33	Students discuss actions which citizens can and should take to facilitate the provision of emergency care by operators of emergency vehicles.	1-2
	Mini-unit 10	
	Being safe on various vehicles	
34	Class discusses bicycle safety.	½-1
35	Students singly or in groups research what travelers should do and not do in order to be safe on airplanes, trains, buses, and subways.	1-2
36	Students examine and report on brochures, instructional materials, and other promotional and descriptive literature about recreational vehicles available from dealers and manufacturers.	1-2
37	Students poll motorcycle drivers and salespersons, pedestrians, automobile drivers, and other groups on motorocycle safety.	2

Mini-unit 11 Doing supplementary research on transportation safety		
Activity #	*Activity Description*	*Class Time (periods)*
38	Students discuss what types of persons might be most inclined or resistant to wearing safety belts. They then poll these people to test their theories.	1½-2
39	Students research various features of cars, including safety features, so that they can simulate the purchase of a car that meets their needs and desires.	2-4
40	Students identify the emergency services available in their community and the reasons for which each is used.	1
41	Students research the government's role in promoting driver safety and discuss the extent to which safe driving behavior can be legislated.	1-2
42	Students participate in a hearing on highway construction or other issue related to transportation safety.	2-4
43	Students examine official (Coast Guard) tables on boating accidents and interpret them, making use of graphs, charts, and written explanations.	1-1½
	Assessment activities	
44	Students answer questions about their interests and concerns in the matter of transportation safety.	½-1
45	Students answer questions about the course.	½-1
46	Students answer questions on transportation safety.	½-1

WHY TEACH ABOUT TRANSPORTATION SAFETY?

The Problems

The *overview* at the beginning of this Manual has already pointed out that travel and transportation play a tremendously important role in the lives of Americans, as all of us drive and walk almost every day, and as we frequently ride buses, trains, planes, and boats or ride around on recreational vehicles.

Most of that travel is safe, speedy and pleasant. But when millions of people travel billions of miles, it is not surprising that accidents do happen. Greater safety can be achieved if the persons who travel--that is, all of us--become better informed about transportation services, the different modes of transportation, the special advantages of some, the special dangers of others, and the things that can be done to improve our safety while we travel.

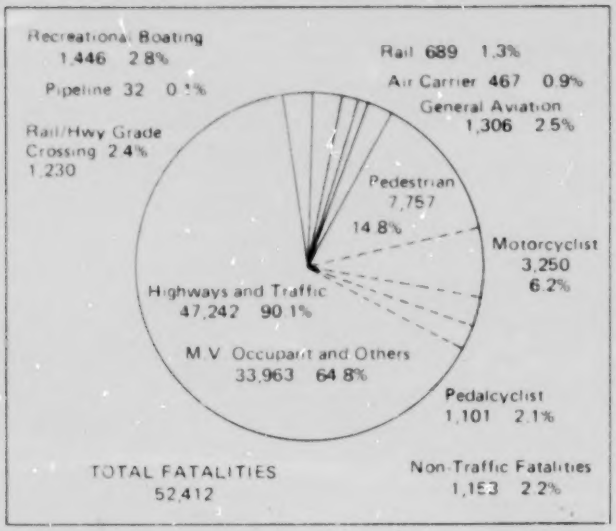
The safest way to travel is to walk. When we walk, we can control where we go, when we go, how fast we go or if we go at all. Yet even pedestrians have accidents. Roughly 300,000 to 400,000 pedestrian accidents occur each year, with 8,000 to 9,000 fatalities.

Americans drive a staggering number of miles each year. The safety record of American drivers is good: there is only one traffic fatality for every 25 *million* of miles driven. Yet the record could be even better, and we should work to reduce the number of traffic fatalities from 50,000 each year to a lower number.

Travel for vacation and recreation should be enjoyable and safe--and most of it is. Few things are more tragic, however, than a recreational trip that is marked by an injury or even a death. Accidents do happen: in 1974 there were, for example, more than 1,400 fatalities from boating and almost 1,000 fatalities even from bicycling.

The following chart, adapted from *U.S. Transportation Information Report*, presents the total figures and relative percentages of transportation fatalities for 1974:

TRANSPORTATION FATALITIES: 1974



The Solutions

Federal, state and local governments must promote transportation safety by providing assistance for the planning, developing, and financing of improved transportation vehicles and facilities. They must enact legislation that will encourage the manufacturers of vehicles to develop the safest possible vehicles and will stimulate the public to engage in safe travel practices.

Local transit authorities--public transportation companies, taxi companies, ferry agencies--must provide maximum safety provisions for their customers.

Citizens/consumers must be careful. They should use different modes of transportation with full awareness of their dangers and what should be done to minimize these dangers: purchase vehicles that are safe to operate and maintain them in proper operating condition; persuade other people to travel safely; and participate in transportation planning to ensure that safety needs are adequately considered in the developing and servicing of vehicles and transportation facilities.

Teachers must guide students to a better understanding of the dangers involved in all kinds of travel and of ways to minimize or prevent them. Transportation consumer education can offer the student

a unique opportunity to develop awareness and skills essential to acquire responsible transportation habits and to play a role in supporting and improving transportation safety in the community.

This Manual focuses on teaching transportation safety by developing consumer skills that are particularly appropriate to grades 9 through 12. The learning activities are designed to

- Make students aware of how to be safe in all modes of travel
- Introduce students to many of the nonrational considerations that result in dangerous travel behaviors, including peer pressure and thrill seeking
- Encourage students to use safety belts whether they are operating a vehicle or riding as passangers
- Acquaint students with the dangers that drinking creates for drivers
- Teach students to consider safety implications in deciding whether to buy a particular vehicle
- Make students aware of how maintaining a car can help them avoid breakdowns
- Develop student's consciousness of the social and political factors involved in the passage of safety legislation and the construction of safe vehicles and transportation facilities
- Teach students how to be safe while boating or engaging in other recreational travel
- Develop skills in making use of emergency vehicles that are available in the local community and in facilitating the tasks of these vehicles while traveling to or from an emergency
- Motivate students to encourage other people to engage in safe travel practices

MINI-UNITS
AND
LEARNING ACTIVITIES

MINI-UNIT 1

SURVEYING THE FIELD OF TRANSPORTATION SAFETY

Note: The activities in this mini-unit are all selected from the units which follow.

This first mini-unit is designed for those of you who may not have sufficient time to use all or even most of the in-depth units which follow. If nevertheless you would like to expose your students to the various aspects of transportation safety, then this unit provides a good general overview of the field. Of course, you may also use this survey unit as an introduction and then follow it by one or more of the following mini-units.

You may, however, prefer to build your own survey unit with other activities included in this volume. By browsing through the activities in the other mini-units you may find those activities that are pertinent for your class and your teaching style.

The survey unit deals with six different topics:

- Dangerous driving habits
- Safety belts, particularly why so many people refuse to wear them
- Driving and drinking
- Buying an automobile with safety in mind
- How to recognize pedestrian hazards, particularly when you are driving
- Safety rules for all kinds of public transportation, such as buses, airplanes, and trains

Even this wide array doesn't cover all of transportation safety; other topics are touched on in Mini-unit 7 (Promoting Transportation Safety Through Consumer Action), Mini-unit 8 (How to be Safe While Boating), Mini-unit 9 (Learning About Emergency Vehicles), and Mini-unit 11 (Doing Supplementary Research on Transportation Safety).

MINI-UNIT 1 LESSON PLAN

Surveying the field of transportation safety

Activity #	*Activities*	*Class Time*
1[a]	DESCRIPTION: Students identify and then discuss common driving habits that are dangerous GOAL: To know and recognize common dangerous driving habits.	½-1 period
2[b] Spirit Master #3	DESCRIPTION: Students poll other students in the class about why they do or do not wear safety belts. GOAL: To understand the reasons why some people do and others don't wear safety belts.	1 period
3[c] Spirit Master #5	DESCRIPTION: Students learn the facts about drinking and driving and discuss them. GOAL: To understand how alcohol affects people and makes driving more dangerous for them.	1 period
4[d]	DESCRIPTION: Students discuss the safety considerations to keep in mind when buying or maintaining a new or used car. GOAL: To know which features to look for, from a safety point of view, when buying a car and what maintenance to perform in order to keep a car running safely.	1-1½ periods

[a] Appears also in Mini-unit 2.

[b] Appears also in Mini-unit 3.

[c] Appears also in Mini-unit 4.

[d] This activity combines parts of activities that appear in Mini-unit 5 and Mini-unit 6, respectively.

MINI-UNIT 1 LESSON PLAN (CONTD.)

Surveying the field of transportation safety

Activity #	*Activities*	*Class Time*
5[e]	DESCRIPTION: Students identify pedestrian hazards and formulate appropriate community countermeasures to enhance pedestrian safety. GOAL: To know what pedestrian hazards are and how to cope with them.	1½-2 periods
6[f]	DESCRIPTION: Students singly or in groups research what travelers should do and not do in order to be safe on airplanes, trains, buses, and subways. GOAL: To identify safety tips for passengers on all modes, as well as to understand regulations and procedures followed by carriers to minimize hazards.	1-2 periods

[e] Appears also in Mini-unit 7.

[f] Appears also in Mini-unit 10.

Total Class Time: 6-8½ periods.

ACTIVITY #1

Mini-unit Topic: Surveying the Field of Transportation Safety

Approximate Class Time: ½-1 period

Capsule Activity Description: Students identify and then discuss common driving habits that are dangerous.*

Goal:

To know and recognize common dangerous driving habits.

Concepts Treated:

- Many things which people commonly do while driving are dangerous.
- Many things which people do frequently and which are not dangerous most of the time become dangerous when done while driving.
- Drivers often know that their habits are dangerous but persist in them.
- Passengers often have difficulty influencing the actions and habits of drivers.

ACTIVITY

The class breaks into small groups and each group identifies habits and behaviors which are unsafe when driving. However, these behaviors are not to include actual driving practices which normally are discussed as part of driver education classes--such as failing to signal turns, passing on curves, and coming to a complete stop at stop signs. Rather, students identify those dangerous habits and behaviors not often associated in the mind of the public with automobile safety and not addressed in many public safety messages. Examples of such behaviors include

- Failure to completely clean windshield and rear window during or after snowstorms

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*This activity also appears in Mini-unit 2.

- Daydreaming
- Girl/boy watching
- Looking for signs or street numbers
- Reading maps
- Engaging in personal hygiene (combing hair, cleaning ears)
- Allowing boisterous or easily panicked animals to be unrestrained in the car
- Driving barefooted
- Eating and drinking
- Talking animatedly
- Chasing bugs which fly into a car
- Restraining children
- Viewing scenery
- Being distracted by passengers who are talking excessively, pointing out scenery or events, horsing around, arguing, or being affectionate
- Turning around to look at back seat passengers while driving
- Driving while sleepy or very upset
- Lighting a cigarette, cigar, or pipe
- Avoiding or cleaning ashes from a cigarette
- Searching for things in pockets, wallets, purses, glove compartments, back seats
- Fiddling with radio or tape deck

The groups present their lists to the class, and a master list of dangerous driving habits is developed.

Follow-up discussion is held on one or more of the following issues:

1. How many people know these are dangerous habits but engage in them anyway?

2. If people do not realize these are dangerous habits, how can they be brought to this realization?

3. If people are aware of the dangers but continue to practice the habits, what, if anything, can be done to help them change their habits?

4. Should passengers inform drivers of their dangerous driving practices? If so, are there ways of doing this without making the driver angry or defensive?

5. How can drivers who have difficulty avoiding these dangerous habits but would like to change them develop the self-discipline or self-awareness to do so?

6. How can drivers effectively and politely persuade passengers not to disturb their concentration?

Evaluation:

Students role play situations in which a driver or a passenger are engaged in unsafe practices. Students must identify the unsafe practice and try to persuade the other person to stop it (see Activity #8).

Variations and Supplementary Activities:

Students can poll drivers and passengers on the extent of these dangerous practices.

Students who are too young to drive can watch for unsafe driving habits in their parents, school bus drivers, and relatives and discuss them in class.

Students can interview driver education teachers on the most common unsafe driving habits novice or experienced drivers engage in and how these teachers attempt to promote safe driving habits.

Students can research the extent to which car theft is related to automobile safety. For example, many accidents result from joy-riding. Car owners and drivers can reduce joyriding by not leaving their keys in the car and keeping it locked when it is not in use.

Students can research the ways in which modifying cars, jeeps, and other motor vehicles can contribute to driving hazards. For example, students can consider the effects on safety of using oversize tires, special air cushion shocks and special rear-end springs.

ACTIVITY #2

Mini-unit Topic: Surveying the Field of Transportation Safety

Approximate Class Time: 1 period

Capsule Activity Description: Students poll other students in the class about why they do or do not wear safety belts.*

Goal:

To understand the reasons why some people do and others don't wear safety belts.

Concepts Treated:

- Concern for safety is a low priority for many persons.
- Many people don't believe that accidents will happen to them.
- Many people resist regulations, even if they are made for their own benefit.

ACTIVITY

Divide the class into pairs and have each pair interview one another about the use of safety belts. A sample poll that the students can use appears on Spirit Master #3. However, if they prefer, your students can make up their own interview guide or poll.

If there are enough students in the class who are licensed drivers, you may want to conduct two separate polls: one for drivers and one for passengers. Then compare the figures on safety belt usage and on the reasons given for use or nonuse.

The poll and its results should raise the questions of why so many people seem to be unconcerned about safety and take unnecessary chances with their health and life. Statistics on lives saved through use of safety belts are given in Activity #14.

After the class has finished polling one another, list the reasons given for not wearing safety belts on the chalkboard. The class should discuss them and suggest ways to overcome them.

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*This activity also appears in Mini-unit 3.

Evaluation Method:

Students write or role play an interview between a psychologist and a radio or TV interviewer on the reasons why people tend to ignore issues related to automobile safety.

Variation and Supplementary Activity:

Students can debate whether, given the public's lack of concern on automobile safety issues, wearing of safety belts should be required by law.

ACTIVITY #3

Mini-unit Topic: Surveying the Field of Transportation Safety

Approximate Class Time: 1 period

Capsule Activity Description: Students learn the facts about drinking and driving and discuss them.*

Goal:

To understand how alcohol affects people and makes driving more dangerous for them.

Concepts Treated:

- Alcohol affects the reaction time of drivers.
- Alcohol increases the likelihood of accidents.
- Alcohol is involved in 50 percent of all fatal traffic accidents.
- Blood alcohol content is an objective measure of whether a driver was "under the influence."
- Body weight affects alcohol's effect on the drinker.
- Teenagers are more likely than other age groups to be adversely affected in their driving by drinking when they drive.
- Many teenagers choose not to drink.

ACTIVITY

Begin this activity by having students take a brief quiz to evaluate their grasp of the facts about drinking and driving. A sample quiz is provided on Spirit Master #5. Tabulate the answers on the chalkboard. Pass out duplicated copies of the information about drinking and driving provided at the end of this activity. Have students read and then discuss the information provided, comparing it with their answers to the questionnaire. Or distribute copies of one of the brochures suggested in the Bibliography and have students read and discuss the data provided. Alternatively, use the information provided as the basis of a lecture about drinking and driving. You should guide the discussion

*This activity appears also in Mini-unit 4.

of the class so that it concentrates on a specific aspect of the drinker-driver problem, such as the effects of alcohol abuse on driving ability; the relationship between alcohol use and traffic accidents; the special dangers of teenage alcohol abuse and driving; myths about drinking's effects on driving; and how to feel comfortable among drinking friends if your choice is *not* to drink. If the class shows and maintains interest, you can guide the discussion to related issues, such as

- Why do people drink excessively when they know they will be driving?
- What are the excuses some drunk or alcohol-impaired people use to convince themselves they are capable of driving safely?
- Should friends or relatives try to convince each other not to drive after drinking excessively or not to ride with drivers who are alcohol-impaired?
- Are there ways people can be motivated not to drive when alcohol-impaired, not to drink excessively when they will be driving, and not to ride with drivers who are impaired?

Answers to Sample Quiz on Spirit Master #5

1. e	6. a	11. c
2. d	7. c	12. h
3. c	8. d	13. b
4. d	9. d	14. d
5. c	10. b	

Evaluation:

The role play in Activity #18 can be used as an evaluation.

Drinking and Driving*

How Is Drinking Related to Traffic Accidents? Although up to half of all motorists drink alcohol and then drive at some time, these drivers do not significantly increase the risk of accidents, either because they drink in moderation or they allow sufficient time to elapse before driving. However, despite the responsible drinking and driving behavior of most citizens, a strikingly large percentage of traffic accidents and fatalities involve excessive alcohol use on the part of drivers and pedestrians. The U.S. Department of Transportation (DOT) has concluded on the basis of a number of studies that in nearly 50 percent of all fatal automobile crashes one of the drivers was drunk. This means that drinking is involved in about 25,000 of the 53,000 annual fatal highway accidents in the United States. Furthermore, DOT estimates that alcohol abuse is involved in 800,000 of the 14 million annual nonfatal accidents occurring in the United States. In short DOT has concluded that alcohol is the most important single factor leading to fatal crashes and one of the major factors causing nonfatal crashes.

Most of the drinking motorists tested for drinking after involvement in fatal and serious accidents have been drinking very heavily--six or more drinks within one to three hours before driving. Based on this finding and through examination of the community records of such drivers, DOT believes that two-thirds of all traffic fatalities in which alocohol is a factor involve problem drinkers and alcoholics. Social drinkers are involved in only one-third of these crashes, but the problem of the social drinker who had "one too many" is a major problem, too.

What is the increased likelihood of a driver who drinks getting into an accident: DOT estimates that a person who has had five to eight drinks a couple hours before driving is six times more likely to get into an accident than a driver who has not been drinking. A person who has had nine or more drinks before driving is 25 times more likely to crash.

Recently, however, some researchers have questioned the reliability of the studies on which the DOT figures are based, noting that many people involved in traffic accidents are never tested for alcohol consumption and that these untested people probably include many drivers and pedestrians who have not been drinking. Moreover, these dissenting experts point out that just because someone has been drinking, even excessively, before a crash, this does not prove that he must have been responsible for the accident, or, if he was, that alcohol was the cause. Nevertheless, these researchers conclude that even when in some future study *all* victims of accidents *are* tested for prior drinking, "it may be found that the actual frequency of 'alcohol involvement' in fatal crashes is in the range of 25 to 34 percent ...."** In other words,

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*Adapted from U.S. Department of Transportation, *1968 Alcohol and Highway Safety Report* and other sources, by Peter Finn.

**Richard Zylman, "Overemphasis on Alcohol May Be Costing Lives." *Police Chief* (Vol. XLI, No. 1, January 1974), page 67.

alcohol still appears to play a major role in traffic fatalities and presumably accidents. At the very least, then, we can conclude that the more alcohol in someone's bloodstream before driving, the greater the likelihood that (1) he will crash, (2) he will be responsible for any crash in which he is involved, and (3) any such crash will be fatal or severe.

When Will Drinking Impair Driving Ability? While drinking and driving can mix when the drinking is moderate or when enough time elapses between the time a person drinks and the time he drives, just how many drinks impair a person's ability to drive safely? Alcohol-traffic safety experts have conducted enough tests to answer this question. They have determined this number of drinks by scientifically testing motorists' driving performance while totally sober and then after drinking varying amounts of alcohol. However, in order to make these tests accurate, the experimenters measured not just how many drinks the drivers consumed, but *how much alcohol was in their bloodstream*. This was essential because alcohol affects people only when it enters their bloodstream and only when it has reached a certain level in their bloodstream. The amount of alcohol in the blood is called *blood alcohol content* or *BAC*.

Only four factors can affect the amount of alcohol in a person's blood--his BAC:

1. The *amount* of pure alcohol he drinks, not the number of drinks. For while one beer, one glass of wine, and one mixed drink all contain approximately the same amount of pure alcohol (1 ounce), certain cocktails, like Martinis and Manhattans, that combine two types of alcohol, contain much more pure alcohol (1½-3 ounces). In addition, some people make mixed drinks with considerably more alcohol than the one ounce normally included.

2. Whether the person has *eaten* before drinking or eats while drinking. Food will slow down the passage of alcohol into the small intestine and from there into the bloodstream. Moreover, the food adds water to the stomach thereby diluting the alcohol.

3. How much a person *weighs*. Weight affects BACs because the more someone weighs, the more blood he has. And the more blood he has, the more he must drink to reach the same BAC level as someone who has less blood--that is, weighs less.

4. How long the person *waits* after drinking or between drinks influences BACs because the longer the wait, the more time the liver and body tissues have to oxidize the alcohol and eliminate it from the body.

Nothing else affects a person's BAC. Mixing drinks will not cause increased intoxication, nor will cold showers, drinking hot coffee, and a host of other so-called cures for drunkenness reduce intoxication, simply because they don't change the amount of alcohol in a *person's blood* and thereby alter alcohol's affects on his behavior.

To return, then, to the original question of how many drinks will impair a motorist's ability to drive a car safely: For an adult male who weighs 175 pounds, has not eaten before drinking, and does not wait very long before driving after drinking, a BAC of .05 percent (as few as three drinks) is *likely* to impair his driving performance to some extent. Impairment can occur, however, at BACs as low as .01 and .04 percent (one to two drinks) for some people.*

There is one other element involved in predicting how drinking will affect driving performance. Drivers who have consumed moderate amounts of alcohol (one or two drinks) and have moderate BACs (.03-.05 percent) and who are experienced drinkers and experienced drivers can partly compensate for their impairment because they are familiar with what alcohol does to them and can make a conscious effort to compensate for its effects such as concentrating harder, driving more slowly, and avoiding busy streets. However, this ability to compensate for impairment decreases rapidly with higher BACs, is of little value to the novice driver or inexperienced drinker, and is of no value to any motorist who is confronted by something unexpected while driving.

What Effects Can Alcohol Have on Driving Performance? Below is a list of some of the physical and behavioral effects drinking *can* produce on drivers with low BACs and *will* produce on drivers with high BACs that will increase their risk of crashing.

BEHAVIORAL EFFECTS

1. *Reduced ability to judge things*, such as distances, speeds, angles, etc.

2. *Dulling of critical judgment capacities* and therefore reduced awareness of one's deteriorating performance: even though the motorist is driving poorly, *he* doesn't think he is.

3. *Increased tendency to take risks* because of feeling overconfident, such as passing on curves and hills.

4. *Reduced ability to concentrate*, for example, on speed or intersecting traffic.

5. *Concentration on only one part of the traffic scene* and ignoring other parts. This reduces the driver's ability to deal with many

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*Although several studies have indicated that drivers who have drunk a little alcohol (one to two drinks) and have low BACs (.01-.04 percent) before driving are involved in fewer accidents and fatalities than alcohol-free drivers, this may be because such drivers compensate for their drinking by driving even more carefully than they do when sober. Moreover "better drivers are most likely to drive at low BACs and are also most likely to drive during periods of least traffic when it is easier to compensate for impairment" [Richard Zylman. "The Variability of Collision Involvement at Low Blood Alcohol Concentrations: The Grand Rapids Curve Explained." *Blutalkohol: Alcohol, Drugs and Behavior* (Vol. 9, No. 1, January, 1972), page 30].

rapidly changing factors, such as altered speed limits, stop lights, curves, and lateral traffic and pedestrians.

6. *Forgetfulness*, such as not turning lights on at night, leaving high beams on, not signalling turns.

PHYSICAL EFFECTS

7. *Impaired reflexes:* reduced ability in particular to deal with the unexpected, like skids, blinding by on-coming high beams, sudden appearance of other cars or pedestrians, changing signal lights, road construction, faulty or wet brakes.

8. *Reduced vision:* reduced peripheral vision: (increased difficulty seeing what is going on to the left and right); reduced night vision (something made even more difficult in smokers, since carbon monoxide in the blood also reduces night vision); reduced depth perception (i.e., ability to determine the relative nearness or distance of an object); and reduced sharpness of perception, culminating in double vision at high BACs.

9. *Sleepiness*, with resulting reduced concentration and vision.

Not only are drivers who drink likely to experience these effects after a few drinks and sure to experience them after several; if these drivers are already in poor health, fatigued, taking other drugs (especially tranquilizers and barbiturates), or inexperienced at drinking or driving, the impairing effects of alcohol will be magnified even more.

Some of the actual dangerous *driving behaviors* that excessive drinking can cause include performing normal driving tasks more slowly, including braking, turning, signalling, stopping; passing on curves and hills; weaving; driving excessively slowly or fast; running stop lights and stop signs; responding tardily or overreacting to unexpected occurrences, like children running out, or to unexpected happenings, like curves; failing to see soon enough or clearly enough, or failing to see pedestrians and cars that suddenly appear; driving the wrong way down one-way streets; and crossing the double white lines and driving out of lane.

Statistics have long indicated that drivers less than 25 years old are involved in a disproportionate number of *all* accidents based on the number of licenses held. However, this basis for estimation does not take into account the *exposure* of youths to accidents--that is, it is not based on a per unit mile of driving. Since it is possible that youths drive more miles per year than older drivers, it seems reasonable to infer that while youths are indeed involved in a higher proportion of accidents than older citizens, this proportion may not be as great as has been frequently assumed.

Moreover, several studies have shown that teenagers may not drive after drinking as often as many people believe, certainly not as often as motorists in their early twenties. In fact, the heaviest frequency of driving after drinking occurs among motorists *over* twenty-five.

Thus, while the evidence indicates that youths are clearly involved in drinking and driving accidents, the extent and nature of the problem may not be as great as for older citizens. Nevertheless, teenage drinking and driving definitely merits special attention for the following three reasons:

While youthful drivers in general may not drive after drinking as often as adults do, studies indicate that youths who *do* drink even *moderate* amounts of *alcohol and then drive are much more likely to be involved in accidents* than are older drivers. Education is therefore needed to inform youthful, novice drinker-drivers that *even small amounts* of alcohol *for them* are of greater danger than for older, experienced drinker-drivers. The explanation for this high teenage accident rate after drinking even one or two drinks is that not having had as much experience as older people with how alcohol affects them, many teenagers have not yet learned how to *compensate* for their impairment--for example, by driving more slowly, leaving before dark, concentrating harder, or avoiding heavy traffic; and not having had as much driving experience as older motorists, they cannot benefit as much from automatic driving habits and automatic responses to normal and to unexpected motoring events as can older motorists.

No matter how many alcohol-related accidents teenagers are involved in, there are enough such crashes to warrant special attention in order to reduce the number of alcohol-related accidents and deaths.

Regardless of how many alcohol-related accidents teenagers are involved in, these young people are going to grow up into adults who, on a statistical basis, may be involved in as many as 30,000 fatalities and 800,000 alcohol-related accidents a year. If we hope to reduce this number of *adult* crashes, we must educate youths before drinking and driving habits have become ingrained.

ACTIVITY #4*

Mini-unit Topic: Surveying the Field of Transportation Safety

Approximate Class Time: 1-1½ periods, plus out-of-class time

Capsule Activity Description: Students discuss the safety considerations to keep in mind when buying or maintaining a new or used car.*

Goal:

To know which features to look for, from a safety point of view, when buying a car and what maintenance to perform in order to keep a car running safely.

Concepts Treated:

- Basic safety items on a car are brakes, tires, windshield wipers, headlights and brake lights, turn signals, side mirrors, and safety belts.
- A used car requires more attention to safety aspects than a new one.
- Maintaining a car properly is a definite contribution to safety.
- Some maintenance tasks can be performed by the owner or operator.
- Some maintenance tasks must be performed by an experienced mechanic with the proper tools.

ACTIVITY

Divide the class into small groups. Each group is instructed to develop a list, either of considerations which the purchaser of an automobile should have in mind in order to buy a safe car, or of maintenance tasks that should be performed in order to keep a car running safely.

To develop their lists, groups should do both research and interview knowledgeable persons. Among the books and pamphlets that give advice on buying and maintaining a car are these:

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*This activity combines parts of activities that appear in Mini-unit 5 and Mini-unit 6, respectively.

Common Sense in Buying a Safe Used Car. U.S. Department of Transportation, National Highway Traffic Safety Administration, Office of Public Affairs and Consumer Services. February 1976.

Car Buying Made Easier. Ford Motor Company. 1974.

Your Wheels--How to Keep Your Car Running. Chet Cunningham. G.P. Putnam's Sons. New York, 1973.

Other sources are given in the Bibliography at the end of this volume. Among the kinds of persons whom students should interview are car salesmen (both new and used), faculty of the school's automotive department, and automobile mechanics. Before interviewing anyone, the group should develop a questionnaire. Each group can administer its own questionnaire, or a master questionnaire can be developed from those of several groups. A sample questionnaire to use with automobile mechanics is provided at the end of this activity.

After all the groups have developed their lists, the class meets as a whole again and two master lists are developed: one of things to look for in buying a car that is safe and one of items that need regular maintenance and attention in order to keep a car running safely. You should supplement the students' suggestions so that their lists are fairly complete and contain the following items.

Things to Check when Buying a Car*

- Size and weight
- Optional equipment
- Visibility
- Brakes and tires
- Defects
- Owner's manual
- Safety record
- Prior history
- Safety belts
- Brakes
- Odometer

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*Further explanations in Activity #19.

Things to Check and Have Regular Maintenance Performed On*

- Tires
- Horn
- Muffler
- Windshield wiper
- Heater
- Tailpipe
- Headlights and tail lights
- Directional signals
- Wheel alignment
- Brakes and brake fluid
- Parking brake

Evaluation:

Students are given a detailed description of a used car with a number of safety problems. Students role play a confrontation between a salesman and a prospective buyer about this car, its defects, what should be done about them, who should pay to have them fixed, etc.

Students do a similar role play, but this time between a mechanic and the owner of this car. The mechanic insists certain maintenance tasks must be done in order to make the car safe. The owner resists, claiming that the mechanic is merely trying to get money out of him.

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*Further details in Activity #23.

Sample Questionnaire of Automobile Mechanic on Car Maintenance and Automobile Safety

1. What regular maintenance tasks are necessary to keep a car running safely--for example, replacing tires which have no tread left?

2. What kinds of accidents take place because regular maintenance work was not performed on a car?

3. Which maintenance tasks related to safety can the average car owner perform him or herself?

4. How often or when should each of these maintenance tasks listed in Question 1 be performed?

5. In your experience, do car owners tend to have this kind of maintenance work performed regularly or do they wait until something happens which forces them to have it done?

6. Why do you think drivers who do not regularly keep their car in safe running condition fail to do so?

ACTIVITY #5*

Mini-unit Topic: Surveying the Field of Transportation Safety

Approximate Class Time: 1½-2 periods, plus out-of-class time

Capsule Activity Description: Students identify pedestrian hazards and formulate appropriate community countermeasures to enhance pedestrian safety.*

Goal:

To know what pedestrian hazards are and how to cope with them.

Concepts Treated:

- Being a pedestrian includes coping with hazards.
- Some hazards are peculiar to intersections, some to mid-block locations.
- Some pedestrian hazards are related to other activities, such as purchases from a street vendor.
- Some age groups present a higher pedestrian risk than others.

ACTIVITY

Write this statement on the chalkboard:

In 1973, approximately 400,000 pedestrians were involved in accidents with motor vehicles. About 10,000 of the accidents resulted in pedestrian fatalities, with 64 percent of these fatalities occurring in urban areas.

As a class discuss some or all of the following issues:

- Do you ever think of yourself as a pedestrian? What responsibilities do you have as a pedestrian?
- Do you ever worry about your safety as a pedestrian? Why or why not?

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*This activity also appears in Mini-unit 7.

- Does a pedestrian have any kind of protection from harm? What protects a pedestrian best?

Brainstorm for dangerous pedestrian practices that students, themselves, and/or others engage in. List them on the chalkboard. Some practices that might be mentioned follow:

- Darting into street without looking
- Not crossing at crosswalk or intersection
- Standing in street rather than on sidewalk while waiting to cross street
- Not paying attention while walking (e.g., talking to friend, reading newspaper)
- Walking at night wearing dark clothing
- Running rather than walking across street
- Getting caught in middle of street when traffic starts up
- Being upset, drunk, on drugs while walking

Using the material attached, relate those practices mentioned by the students to the eight most frequently occurring pedestrian accidents.

To find a solution or solutions for improving pedestrian safety, students first observe pedestrian habits and practices at various points in the community. Break the class into pairs and pass out the first table, which outlines the characteristics of each accident type. Using this table and the list on the chalkboard as guides, students make up an observation sheet or adapt the one provided as Spirit Master #7.

Working together, students choose a location from which to observe pedestrian movement at different times over a period of a few days. When the information has been gathered, students determine what precautions pedestrians should be taught or alerted to, to ensure their safety, and what the community can do to further the public's safety while walking.

Students present their findings and conclusions to the class in a form similar to that in the second table, which are then compared to the pedestrian countermeasures and expected outcomes of the table. The countermeasures are then assessed and the best ones for the local community are chosen and outlined.

Evaluation:

Students make up a pedestrian safety brochure for their community.

Variations and Additional Activities:

Students pick a particular age group or population to observe and report on.

Students can focus on the dangers of playing in railway yards and around railroad crossings.

Students research the existence of anti-jaywalking laws and whether they are enforced.

Pedestrian Hazards*

Eight frequently reported types of accidents account for over 55 percent of the pedestrian accidents studied. A brief description of the eight types of pedestrian accidents follows:

Dart-out (First Half). A pedestrian, not in an intersection crosswalk, appears suddenly from the roadside. His quick appearance and short-time exposure to the driver are the critical factors. The pedestrian often may be running, and parked cars often obstruct vision, but neither need be present if the basic condition of sudden appearance to the driver's view is met. The prime example of the dart-out is a school-age child running out from between parked cars on his own block, in a residential area in the center city in the afternoon after school. He heads straight across the relatively narrow street, looking where he is going, and is struck less than halfway across. The driver, traveling at a normal rate of speed, did not have enough time to stop after detecting the child.

Dart-out (Second Half). This is the same as the dart-out described for the first half above, except that the pedestrian covers half of a normal crossing before being struck. The distinction was made because of the possible differences in the opportunities or problems relative to driver detection and recognition of danger if the roadway is clear. However, this type was assigned even if traffic obscured the driver's vision. It may be used even if the pedestrian crosses a medium-size median strip of a boulevard.

Intersection Dash. This category covers cases similar to dart-outs with regard to pedestrian exposure to view, but the incident occurs in or near a marked or unmarked crosswalk at an intersection. Cases are included if the pedestrian is running across the intersection even though his exposure to possible driver view is not extremely short. (His speed will, in effect, limit his actual exposure to the driver.)

**Urban Pedestrian Accident Countermeasures Experimental Evaluation,* Vol.1. Behavioral Evaluation Studies. Wallace G. Berge. Prepared for National Highway Traffic Safety Administration and Federal Highway Administration, U.S. Department of Transportation, Washington, D.C., February 1975, page 1-1.

Vehicle Turn/Merge With Attention Conflict. The driver is turning into or merging with traffic; the situation is such that he attends to auto traffic in one direction and hits the pedestrian who is in a different direction from his attention. A critical feature is that the attention conflict is built into the situation. Usually the driver directs his attention in a given direction to determine an acceptable gap into which he will enter.

Pedestrian Strikes Vehicle. This classification covers crashes *not* covered by other clear types (e.g., dart-out), in which it has been determined that the pedestrian ran or walked into the car.

Multiple Threat. The pedestrian is struck by car *x* after other cars blocking the vision of car *x* stopped in other lanes going the same direction, and avoided hitting the pedestrian. For example, cars in lanes one and two stop and permit the pedestrian to cross; car *x* in lane three going the same direction hits the pedestrian as he steps out in front of the car in lane two. This classification is not used if the striking vehicle is going in the opposite direction from the stopping cars. (In that situation, the stopping cars would not block the driver's vision.)

Bus Stop Related. This type includes cases in which the location or design of the stop appears to be a major factor in the causation; e.g., the pedestrian crosses in front of the bus standing at a stop on the corner, and the bus blocks the view of cars. It does not include those cases that may be considered as exiting from a vehicle, nor does it include cases in which the stop is only an attraction or distraction.

Vendor-Ice Cream Truck. The pedestrian is struck going to or from a vendor in a vehicle on the street. This is usually similar to a dart-out, with ice cream trucks being the most frequent attraction. This specific classification was given precedence over dart-out when assigning cases to types.

The following tables further define these accident types in terms of some of their locational (e.g., block location, environmental settings) and behavioral (e.g., running into roadway, between parked cars) characteristics.

PEDESTRIAN ACCIDENT DESCRIPTION[1]

Accident Type	% of Ped. Accidents	% That Are Fatal	Characteristics				
			Time of Day	Ped. Age	Block Location	Area	Accident-Related Behavior
1. Dart-out First Half	24.1	8.3	Day (70.5)[2]	5-9 (52.5)	Nonintersection (90.7)	Residential (63.4)	Running into the roadway Failure to look for traffic Entry between parked vehicles
2. Dart-out Second Half	8.8	10.4	Day (71.7)	5-9 (49.7)	Nonintersection (74.1)	Commercial (35.4)	Running into second half of roadway Midblock crossing Entering between parked vehicles
3. Intersection Dash	8.4	6.7	Day (76.8)	5-9 (39.0)	Intersection (96.9)	Commercial (48.5)	Failure to look for traffic Crossing against the light Running into the roadway
4. Vehicle Turn/Merge with Attention Conflict	6.4	8.8	Day (70.9)	All	Intersection (85.5)	Commercial (73.7)	Vehicle turning in proximity of pedestrians Failure to look for traffic Failure to detect pedestrian
5. Pedestrian Strikes Vehicle	4.0	2.3	Day (81.6)	5-9 (34.2)	Intersection (57.6)	Commercial (40.7)	Running into the roadway Failure to look for traffic Entry between parked vehicles
6. Multiple Threat Situation	3.2	5.8	Day (83.6)	10-14 (20.9)	Intersection (70.7)	Commercial (65.2)	Entry from in front of standing vehicle Small separation between stopped vehicle & pedestrian Running in roadway Failure to detect pedestrian
7. Bus Stop Related	2.6	17.9	Day (80.4)	10-14 (17.0)	Intersection (81.1)	Commercial (61.8)	Entry from in front of stopped bus Failure to detect pedestrian
8. Vendor-Ice Cream Truck	1.5	12.4	Day (87.0)	5-9 (69.0)	Nonintersection (31.8)	Residential (78.3)	Running into the roadway Failure to look for traffic Excessive vehicle speed Failure of driver to detect potential threat

[1] Data based on Snyder and Knoblauch (1970).

[2] Percent so classified.

SUMMARY OF COUNTERMEASURES FOR PEDESTRIAN SAFETY

Countermeasure	*Utility*	*Expected/Actual Results*
Segregation of traffic by type; isolation of pedestrian from traffic	Roadway differentiation by type of traffic; separation of pedestrian movement and vehicles; separation of pedestrians by footpaths, underpasses, escalator-type overpasses	Substantial savings in accidents, injuries, property damage and lives; reduction in cost of time loss imposed on vehicular traffic by pedestrians
Provision for reduced speed limits in school areas and adult crossing guards	Installation of warning signs, flashing lights, reduction of speed limit in school area	Increased protection of school-age pedestrians in school zones
Use of reflective and retro-reflective materials for greater pedestrian visibility	Brighter reflective characteristic than white material; ease in application to clothing, and removal when not required	Increased visibility of pedestrians after dark, with commensurate reduction of casualties
Public education on pedestrian rights and responsibilities	Develop responsible reactions to traffic danger	Formulation of pedestrian safety programs for children and adults
Identification of drinking pedestrians and the removal of unqualified or medically impaired drivers	Control of accidents involving problem drinkers and removal of certain drivers from the road	Minimize accidents resulting from alcohol and human failure
Creation of safe play areas in high-accident, high-density areas	Provision of adequate, safe play areas away from traffic	Reduction of accidents to children
Crosswalk illumination and use of abrasive at crossing site	Illumination providing no glare in the motorist's field of vision and faster stopping capability than smooth surfaces	Reduction in vehicle-pedestrian accident rate
Redesign of streets, creation of pedestrian preserves and paths, prohibition of vehicular traffic from certain streets during specific daylight hours.	Accommodates movement of growing populations while prescribing transport and safety features	Improvement in public transport; increased safety for pedestrians
Prohibition of on-street parking; parking restrictions; barriers; and improvement of traffic signal cycles	Field of view of driver and pedestrian greatly improved; removal of physical obstructions; prevention of pedestrian passage between parked vehicles; and enabling pedestrians to cross intersections with greater safety	Increased safety for pedestrians

From *A New Look at Pedestrian Safety*. U.S. Department of Transportation, National Highway Traffic Safety Administration, November, 1975.

ACTIVITY #6*

Mini-unit Topic: Surveying the Field of Transportation Safety

Approximate Class Time: 1-2 periods

Capsule Activity Description: Students singly or in groups do research to learn what travelers should and should not do in order to enhance their safety on airplanes, trains, buses, and subways.*

Goal:

To identify safety tips for passengers on all modes, as well as to understand regulations and procedures followed by carriers to minimize hazards.

Concepts Treated:

- It is possible to identify commonsense safety procedures that passengers should be responsible for following when traveling on any mode.
- Certain Federal agencies have responsibility for issuing safety regulations that must be followed by carriers in various modes and by passengers.
- The carriers themselves have responsibility for developing and following additional safety procedures to insure that all possible hazards will be avoided.

ACTIVITY

Students do research, for various transportation modes, to gather the following information: recommended safety procedures for passengers on the mode; potential hazards connected with the mode; government safety regulations for the carrier and its passengers in each mode; additional safety procedures followed by carriers in the mode.

Students can gather this information by consulting books, magazines, and pamphlets in school and local libraries, and by contacting *safety organizations* such as the National Safety Council, 425 N. Michigan

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*This activity also appears in Mini-unit 10.

Avenue, Chicago, IL 60611; *private carriers*, such as airlines, intercity and interstate bus lines, and railroads; the community service divisions of local transit authorities that run bus lines and rapid transit lines, such as BART (Bay Area Rapid Transit in San Francisco, California) and MARTA (Metropolitan Atlanta Rapid Transit Authority in Atlanta, Georgia); and professionals in your community who have a responsibility for transportation safety, such as policemen, the manager of a local airport, bus drivers, airline pilots or stewards, and the safety director of the local bus company. Students may also write to appropriate Federal agencies that are responsible for transportation safety, such as the Federal Aviation Administration (Washington, D.C. 20591), the Federal Railroad Administration (Washington, D.C. 20590), and the Bureau of Motor Carrier Safety, Federal Highway Administration (Washington, D.C. 20590); for interstate buslines.

Students should be cautioned, however, that the task of these agencies is to write safety regulations for the industries they regulate. While some of the regulations do relate to passengers' behavior, most Federal regulations are quite technical and are directed at the private carriers.

In doing their research, students will want to seek answers to such questions as these:

1. What commonsense safety tips can you suggest for passengers traveling on your mode?

2. Are you aware of any government safety regulations that passengers on your mode must follow?

3. Are there any state or local laws that regulate travelers' behavior and that were designed to enhance their safety?

4. Are there any safety tips, regulations, or laws concerning baggage that travelers should be aware of when using your mode?

5. Are there any potential hazards on your mode which travelers can minimize or avoid by following certain safety tips? (What are the hazards? What are the appropriate safety tips?)

6. Concerning the potential hazards that you just mentioned, what safety regulations have been issued by the Federal government to minimize these dangers?

7. What additional procedures does your carrier follow to minimize each of these dangers?

Students report the results of their research and the class utilizes the information to prepare a chart that will illustrate potential hazards and suggested safety procedures for passengers. Some entries on the chart, for example, might look like this:

Transportation Mode	*Potential Hazards*	***Safety Procedures Passengers Must Follow***	***Safety Regulations Carriers Must Follow***	***Additional Safety Procedures Instituted by Carrier***	***Additional Safety Tips for Passengers***
Airplanes	Turbulent air	Fasten seat belts when instructed	File flight plan	Use of radar to detect bad weather	Keep seat belts fastened at all times
Trains	Being hit by approaching train while waiting on station platform	Stand back of white line	Observe speed limits going through station	Warn passengers of approach over public address system	Do not lean over tracks to look for approaching train
Buses	Collision	Refrain from distracting driver's attention by talking	Obey applicable traffic laws	Use headlights at all times	Notice emergency exit and whether windows can be pushed out in emergency

Evaluation:

Each student selects one mode and writes a brief fact sheet of safety tips for a passenger about to travel on that mode.

Variation:

Students discuss and evaluate the answers they found to Questions 6 and 7 in the list on the previous page. Discussion can center on these points: Do they consider the government's safety regulations to be adequate? Do they consider the carrier's additional safety procedures to be adequate?

Students research and report on procedures followed by Federal agencies in issuing safety regulations, focusing particularly on discovering how citizens can participate in the rulemaking process.

MINI-UNIT 2

UNDERSTANDING DRIVING HABITS

This mini-unit deals with the basic form of transportation in the United States--the automobile. Specifically, we address the issue of safe and unsafe driving habits.

Most of the students in your class will already have drivers' licenses or be eagerly looking forward to obtaining one. This unit hopes to instill safe driving habits in them, by making them aware of what the problems of driving are, before they have developed any (or many) bad driving habits.

Among the concepts treated in this unit are

- Drivers often know that their habits are dangerous but persist in them.
- Many different factors can make driving dangerous.
- Driving safely, or otherwise acting safely, involves a change in behavior for many people.
- Hitchhikers often contribute to accidents.
- Accidents often have multiple causes.

Mini-unit 3 is completely devoted to a highly significant good driving habit--that of putting on safety belts.

MINI-UNIT 2 LESSON PLAN

Understanding driving habits

Activity #	*Activities*	*Class Time*
7[a]	DESCRIPTION: Students identify and then discuss common driving habits that are dangerous. GOAL: To know and recognize common dangerous driving habits.	½-1 period
8	DESCRIPTION: Students role play drivers and passengers in situations that involve safe (or unsafe) driving habits. GOAL: To understand the pressures on drivers and passengers that make for unsafe driving.	1 period
9	DESCRIPTION: Students perform science experiments which illustrate automobile driving safety considerations and issues. GOAL: To understand the scientific basis for some safety rules.	1-2 periods
10	DESCRIPTION: Students discuss some of the reasons which people give for driving dangerously and identify methods by which drivers can be encouraged to adopt safe driving habits. GOAL: To understand the real reasons, including the emotional ones, that keep people from driving safely.	1-2 periods

[a]Appears also in Mini-unit 1.

MINI-UNIT 2 LESSON PLAN (CONTD.)

Understanding driving habits

Activity #	*Activities*	*Class Time*
11 Spirit Master #1 Spirit Master #2	DESCRIPTION: Students act out the parts in the script of "Fleming vs. Rondo--A Hearing." Then, without a script, they complete the hearing and try to come to a conclusion. GOAL: To understand the probable causes of an accident and the contributions of the persons, automobiles, and the environment to the accident.	1½-2 periods
12	DESCRIPTION: Students evaluate a pedestrian accident and determine the causes and responsibility. GOAL: To understand what is the most important cause of a pedestrian accident that had several causal factors.	1-2 periods

Total Class Time: 6-10 periods.

ACTIVITY #7*

Mini-unit Topic: Understanding Driving Habits

Approximate Class Time: ½-1 period

Capsule Activity Description: Students identify and then discuss common driving habits that are dangerous.*

Goal:

To know and recognize common dangerous driving habits.

Concepts Treated:

- Many things which people commonly do while driving are dangerous.
- Many things which people do frequently and which are not dangerous most of the time become dangerous when done while driving.
- Drivers often know that their habits are dangerous but persist in them.
- Passengers often have difficulty influencing the actions and habits of drivers.

ACTIVITY

The class breaks into small groups and each group identifies driving habits and behaviors which are unsafe when driving. However, these behaviors are not to include actual driving practices which are normally discussed as part of driver education classes--such as failing to signal turns, passing on curves, and coming to a complete stop at stop signs. Rather, students identify those dangerous habits and behaviors which often are not associated in the mind of the public with automobile safety and are not addressed in many public safety messages. Examples of such behaviors include

- Failure to completely clean windshield and rear window during or after snowstorms
- Daydreaming
- Girl/boy watching

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*This activity also appears in Mini-unit 1.

- Looking for signs or street numbers
- Reading maps
- Engaging in personal hygiene (combing hair, cleaning ears)
- Allowing boisterous or easily panicked animals to be unrestrained in the car
- Driving barefooted
- Eating and drinking
- Talking animatedly
- Chasing bugs which fly into the car
- Restraining children
- Viewing scenery
- Being distracted by passengers who are talking excessively, pointing out scenery or events, horsing around, arguing, or being affectionate
- Turning around to look at back seat passengers
- Driving while sleepy or very upset
- Lighting a cigarette, cigar, or pipe
- Avoiding or cleaning ashes from a cigarette
- Searching for things in pockets, wallets, purses, glove compartments, back seats
- Fiddling with radio or tape deck

The groups present their lists to the class, and a master list of dangerous driving habits is developed.

Follow-up discussion is held on one or more of the following issues:

1. How many people know these are dangerous habits but engage in them anyway?
2. If people do not realize these are dangerous habits, how can they be brought to this realization?
3. If people are aware of the dangers but continue to practice the habits, what, if anything, can be done to help them change their habits?

4. Should passengers inform drivers of their dangerous driving practices? If so, are there ways of doing this without making the driver angry or defensive?

5. How can drivers who have difficulty avoiding these dangerous habits, but would like to change them, develop the self-discipline or self-awareness to do so?

6. How can drivers effectively and politely persuade passengers not to disturb their concentration?

Evaluation:

Students role play situations in which a driver or a passenger are engaged in unsafe practices. Students must identify the unsafe practice and try to persuade the other person to stop it (see Activity #8).

Variations and Supplementary Activities:

- Students can poll drivers and passengers on the extent of these dangerous practices.

- Students who are too young to drive can watch for unsafe driving habits in their parents, school bus drivers, and relatives and discuss them in class.

- Students can interview driver education teachers on the most common unsafe driving habits novice or experienced drivers engage in and how these teachers attempt to promote safe driving habits.

- Students can research the extent to which car theft is related to automobile safety. For example, many accidents result from joy-riding. Car owners and drivers can reduce joyriding by not leaving their keys in the car and keeping it locked when it is not in use.

- Students can research the ways in which modifying cars, jeeps, and other motor vehicles can contribute to driving hazards. For example, students can consider the effects on safety of using oversize tires, special air cushion shocks, and special rear-end springs.

ACTIVITY #8

Mini-unit Topic: Understanding Driving Habits

Approximate Class Time: 1 period

Capsule Activity Description: Students role play drivers and passengers in situations that involve safe (or unsafe) driving habits.

Goal:

To understand the pressures on drivers and passengers that make for unsafe driving.

Concept Treated:

- Factors that make drivers engage in unsafe habits include crowding of car, length of drive, unfamiliarity with roads distracting conversations, and unresolved feelings of rivalry or hostility toward passengers.

ACTIVITY

Place several chairs at the front of the room to set the stage for short skits about automobile trips. Ask for volunteers or assign students to fill the various parts outlined in the role profiles which appear on the page after next. Each skit takes place in a car enroute to its destination. The students in the skit leave the room while the profiles are read to the class. The students return to the room and each reads the profile to him or herself. The skits are then acted out spontaneously. After each skit, the participants tell how they felt about the trip and each other's behavior. The class then discusses the specific problems associated with the trip and how the trip could have been made better and safer for both driver and passengers.

After all the skits have been performed, discuss the following issues:

- How do you feel when you are trying to do something and somebody is bothering you?

- How do you think a driver feels when he or she is in the car and is being bothered?
- What is the difference between being distracted at home and in a car?
- Who is responsible for making the trip safe? Why? What are your responsibilities when traveling in an automobile?

Evaluation:

After the role play is over, have students draw up a list of do's and don'ts as drivers and passengers.

Skit 1: Family Going to the Beach

Driver (mother or father): Traffic is just terrible. It has been bumper to bumper ever since you left home an hour ago. The beach is great, but why does it take so long to get there? The kids have been jumping around the car from the minute they got in, and the dog should have been left at home. Your wife/husband is no help in keeping the kids entertained. She/he just stares out the window pretending everything is just fine in the back seat. Oh no, the noise is getting worse! Why is that dog whimpering? Those kids are going to get it if they don't keep the noise down. You've had it! What do you say?

Parent (mother or father): You are so exhausted. It took forever this morning to get the kids ready to go to the beach. You forgot to buy bologna for sandwiches, so all you've got for lunch today is peanut butter and jelly. Ick! Why doesn't anything ever go right? There better be enough towels, suntan lotion, balls, books, dog bones, shovels, pails, radios, magazines, cookies, and bottles of tonic to keep everybody happy! All you want to do is get to the beach and sleep. These trips just aren't any fun anymore. Any why does everybody have to go to the beach on the same day? This traffic just won't move. Why can't your husband/wife drive this car any faster? You're just poking along. You'll get there by supper time at this rate. Oh no, what is going on in the back seat? If those kids get into a fight, you're just going to have Fred/Sally stop the car and they can get out and walk to the beach --and that dumb dog, too! You can't stand anymore! You've got to say something.

Jimmy: Boy, is it ever hot in this car! Why can't Daddy and Mommy buy air conditioning when they get a car, like Jessica's mother and father? Your legs stick to the seat, and bugs come in the windows, and you're not even allowed to drink pop while you're riding in the car because you might spill something. This just isn't any fun at all! And that stupid sister of yours sitting over there with her head out the window is really making you mad. She knows she's not supposed to do that, but she always gets away with everything. She should only fall out of the car! Of course, at the rate you're moving, she wouldn't even scrape her elbow. Hey, what's that bug doing flying in your window? Oh boy, he landed right on the window ledge. Let's see if you can roll the window up and crush him. Owwww!!!! You caught your finger in the window!!!! What do you do?

Donna: This is really neat. You love to ride with your head out the window, it is so much cooler and you get to sing as loud as you want and look in the windows of the cars going by and see what everybody is doing. If your mother notices, she is going to yell at you, but she is looking out her window, thank goodness. The car ride has been really fun so far. Your brother is over there talking to himself and hasn't bothered you once, the dog is asleep on the floor, and your parents haven't said one word since you left home. You wish all your car trips could be like this. Well, one more verse of "One Hundred Bottles of Beer on the Wall," and then you're going to wake the dog up and see if she wants to play for a while. Hey, your hat just flew out the window. What do you do?

Skit 2: Two Couples on Their Way to a Restaurant

Fred Smith: Why did your wife choose to go to this restaurant in the middle of nowhere? You have no idea where you're going and the directions you were given are just terrible. Why does Bill think he knows where he's going--he's never been to this restaurant before. You should never have let him look at the directions; now he won't give them back to you. He keeps saying that it's unsafe to drive and read directions at the same time. You know perfectly well it's not unsafe. You've done it hundreds of times before. Now if that chattering wife of yours would just hold the noise down, maybe you could remember the directions and get everybody to the restaurant without any help from Bill. You're just going to pay attention to the road and not listen to anybody.

Bill Rossi: You're sure you've been to this restaurant before. It was a long time ago, but once you've been somewhere, you always remember the way back. In fact, the last time you were here, you took a shortcut that saved at least five minutes in driving time. You know you'll remember the turn when you see it. That road up ahead looks like the place you turned. You better warn Fred to put his signal light on for a right turn.

Jean Smith: Your husband always insists on driving whenever you go out together. It would make much more sense for you to drive--you're a better driver and have a better sense of direction. But no, he's the man of the house, and all men think they have to drive the car. You hope he gets lost tonight. It would serve him right for being so sure of himself all the time. If you continue to talk to Alice about your mother-in-law, maybe you will distract Fred from paying close attention to where he is going. Anyway, you had a big lunch today, and you would not care if you had to wait another hour or so before eating dinner.

Alice Rossi: You are just starving. You didn't have a chance to eat lunch today because you were in the operating room from 10:00 this morning until 3:00 this afternoon. Some days it just doesn't pay to be a doctor. Why did Jean have to pick a restaurant miles from home? And knowing Fred, he'll get you all lost and you won't eat before midnight. You also wish Jean would stop talking. Not only are you hungry, but you're tired, and all this talk about Fred's mother is very boring. Hey, there's a restaurant up ahead that doesn't look too bad. Why don't you suggest stopping there to eat instead of going to that other place?

Skit 3: Three Boys on Their Way Back to College
After a Vacation at Home

Jerry: You and your friends Tony and Don are on your way back to college from your week's vacation. It was good to be home, but you're looking forward to going back to school to finish out the year. You have been driving for about 2½ hours and are feeling a little stiff. It should be close to time for Tony to take his turn at the wheel. Oh boy...it looks like you're coming into a city. You didn't realize you would have to cope with city traffic. Hopefully, there will be signs to lead you *around* the city so you won't have to drive through it. It would be nice if Don would put away that dumb crossword puzzle and start looking at the road to help you get through this mess. And what is Tony doing in the back seat?

Don: It sure is terrific that Jerry has a car and can give you and Tony rides home from college at vacation time. It is much more fun making the trip with other people--traveling alone on the train is so boring. This crossword puzzle you've been working on for the past half hour is really tough. What's a nine-letter word for "Daily Reader" anyway? Jerry is pretty good at these things, maybe he can give you some help. Doing these things as a team usually works out better anyway.

Tony: Gee, it's only 11:00. It seems as if the three of you have been driving for days. You won't get back to school until late this afternoon. Maybe you should try to take a nap--that always helps to make the time go faster. But before you do that, you think you'll have a little snack. Jerry's mother packed enough sandwiches and cookies for an army, and Don's mother sent along more fruit than your whole dorm could consume in a month. Let's see...what kind of sandwiches have we got here? Maybe somebody in the front seat might like something to eat, too.

ACTIVITY #9

Mini-unit Topic: Understanding Driving Habits

Approximate Class Time: 1-2 periods

Capsule Activity Description: Students perform science experiments which illustrate automobile driving safety considerations and issues.*

Goal:

To understand the scientific basis for some safety rules.

Concepts Treated:

- Safety belts protect drivers or passengers in a crash, but do a better job when both lap and shoulder belts are used.
- When a traffic light turns yellow, a decision has to be made whether to stop or to go.
- Exhaust gases can kill.

ACTIVITY

The following science experiments illustrate different automobile driving safety problems. Some relate only to driving considerations, while others also involve social issues. For example, the activity on yellow traffic lights (Number 3) introduces the issue of when and how citizens can take action to urge improvement or installation of traffic signals and signs to promote traffic safety. The experiment on carbon monoxide (Number 4) can be used to introduce discussion of whether regular automobile inspections should be required by law and should include a check on the condition of automobile mufflers.

You may want to consider enlisting the aid of a science teacher for some or all of these experiments.

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*These experiments were developed for this activity by Donald Bockler of Belmont, Mass., a secondary school science teacher.

Evaluation:

Have students explain, orally or in writing, how the experiment they have just performed pertains to safety.

Sample Safety Experiments

1. *Automobile Safety Belts*

A student sits in the driver's seat of an automobile equipped with lap and shoulder seat belts. With both lap and shoulder belts on, the student lists the different parts of his/her body that can touch a solid part of the steering wheel and/or the dashboard if the car were to stop suddenly. Examples of these parts are: forehead, nose, teeth, chin, upper arm, shoulder, collarbone, wrist, waist, ankle, etc. Repeat this procedure using only the lap belt (buckle the shoulder belt behind the back if necessary). Repeat this a third time, using no seat belts at all.

Students repeat the above procedure sitting in the back seat. Students then evaluate the function of safety belts in preventing bodily injury to the driver and passengers upon impact of a moving automobile.

2. *Reaction Time*

The class demonstrates in this experiment that a fast reaction time between the eye and the foot is about seven-tenths of a second at minimum.

Insert or tape an eyelet hook or nail exactly eight feet above the floor. Fasten a small weight of one or two ounces (the exact weight will make no difference in the computations) to one end of a thread about 25 feet long. Thread the other end through the eyelet until the weight is up to the eyelet. Tape a one-hole rubber stopper to the floor about a foot behind the point directly below the eyelet. Thread the free end of the line through the hole in the rubber stopper and allow the free end to lie loose and untangled when the weight is pulled up to the eyelet. The thread should move freely and relatively frictionlessly through the stopper and eyelet when the weight is dropped.

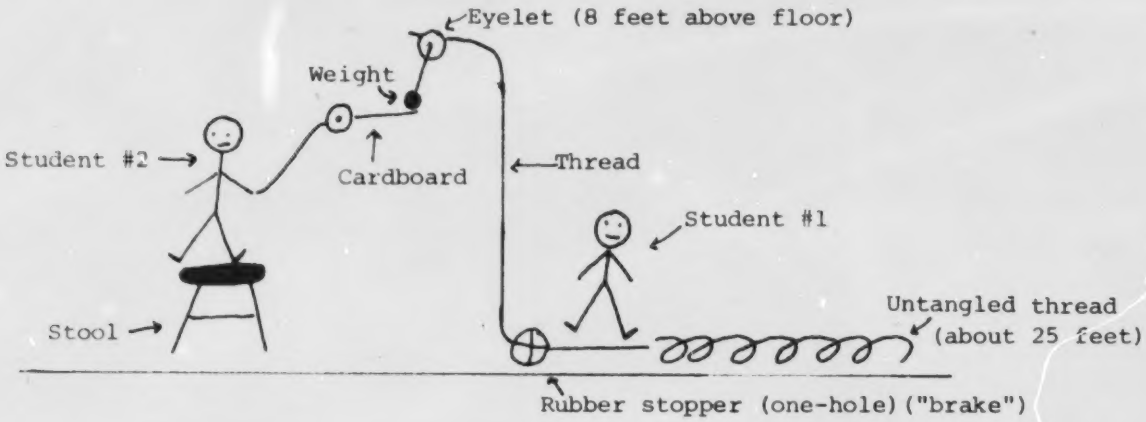
During an experimental run, a student can test his or her reaction time by stepping on the rubber stopper to brake the moving thread as quickly as possible when he or she sees the weight drop from the eyelet. A second student should stand on a stool and use a piece of cardboard to rest the weight on until the weight is dropped. When the weight is released, the first student lifts his or her foot from the floor next to the rubber stopper and steps on the stopper as quickly as possible to stop the thread as it passes through the stopper. The distance that the weight has dropped can then be measured and eye-to-foot reaction time can be calculated by using the following formula:

$t = \frac{1}{4}\sqrt{d}$ where t is the reaction time in seconds and d is the distance in feet.

(This has been derived from $d = \frac{1}{2}gt^2$.)

Accordingly, the weight should drop eight feet to the floor by the time a quick reacting person can "put the brakes on" in seven-tenths of a second.

Diagram of Experiment Set-up:



3. *Stopping-time for a Yellow Light*

Students should time the duration of various yellow lights in town to the closest tenth of a second and then calculate the necessary times and distances required to stop an automobile approaching a stop light at different speeds. Minimum stopping distance at various speeds are shown in the following table:

MPH	*Reaction Time Distance*	*Braking Distance*	*Total Distance*
10	11	9	20
20	22	23	45
30	33	45	78
40	44	81	125
50	55	133	188
60	66	206	272
70	77	304	381

Students should measure the distances across the intersections at each yellow light timed and compare these distances with the total minimum stopping distances at various automobile speeds. The number of feet traveled during the duration of the yellow light can be calculated by the following formula:

$$\frac{\text{mph} \times 5280 \text{ feet}}{3600 \text{ seconds}} \times \text{Seconds of yellow light} = \text{Feet traveled}$$

4. *Effect of Carbon Monoxide (CO) Gas on Living Organisms**

These investigations should be performed in air-tight test chambers such as wide mouth glass jars with reliable screw-tops, glass aquaria or bell jars. *A FUME HOOD SHOULD ALWAYS BE USED. DO NOT INHALE ANY OF THE GAS.* The gases are available in cylinders from different chemical supply houses. Students should set up several test chambers in which plants such as beans, radishes, white pine seedlings, pumpkin, oats or tobacco are growing. Small animals such as ants, fruit flies or mosquitoes should be used rather than larger animals. Different controlled amounts of CO gas should be introduced into the test chambers under the hood and effects should be observed after prolonged exposure for "days" with plants and "hours" with animals. The concentrations can be measured using a gas sampling kit such as those available from Eduquip or Ward's Supply House.

Concentrations should vary from 10 to 1000 parts per million (ppm). It should be noted that within 30 minutes, 1300 ppm is fatal to humans. Just 10 ppm CO can cause dizziness or nausea; 100 ppm are fairly common in tunnels and parking garages in major cities and levels as high as 400 ppm have been recorded in traffic jams. An eight-hour exposure to an atmosphere containing 80 ppm reduces the oxygen-carrying capacity of blood by about 15 percent, or more than the equivalent of one pint of blood. (These statistics have been taken from *Environmental Pollution* (William A. Andrews, ed.). Prentice-Hall, Inc., New Jersey: 1972).

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*This experiment involves some experiments that require killing plants and animals. You may feel that it is wrong, for ethical or educational reasons, to kill living things in a course designed to protect human life--or that it is wrong to do so at any time. If you feel this way, you may simply want to describe what the results of the experiment would be if you performed it and then discuss with your students whether *they* feel such experiments are appropriate in a course such as yours or at any time.

ACTIVITY #10

Mini-unit Topic: Understanding Driving Habits

Approximate Class Time: 1-2 periods

Capsule Activity Description: Students discuss some of the reasons which people give for driving dangerously and identify methods by which drivers can be encouraged to adopt safe driving habits.

Goal:

To understand the real reasons, including the emotional ones, that keep people from driving safely.

Concepts Treated:

- There are some nonrational motives for ignoring safety.
- There are also sometimes some rational motives.
- Driving safely, or otherwise acting safely, involves a change in behavior for many people.
- There are several different ways in which people can try to change their own behavior or that of others.

ACTIVITY

Students write brief accounts (½-½ page) of things they personally have done or have seen others do in spite of the knowledge that these actions were clearly dangerous and how people justify these actions. The teacher can give one or two examples, including not only unsafe driving and riding habits, but also examples such as overweight people eating fatty foods, people smoking, people with illnesses or injuries engaging in strenuous physical activity, or eating foods which may be poisonous.

During the following class session, students divide into small groups and are given written instructions to

1. Read each other's papers.
2. Review the actions described and decide and record *why* these people might have done these dangerous things.

3. Decide which, if any, of these reasons might explain why some people practice unsafe driving habits.

4. Try to identify other reasons why some people do not practice safe driving habits even though they know they are risking injury or death.

Groups report their results to the class and analyze their conclusions. Discussion can follow on which "reasons" for not practicing safety measures are really just excuses. For example, people often say they don't wear safety belts because they aren't comfortable; mess their clothes; are too much trouble; are only worn by dull, old people; insult the driver if you wear them; or slip their minds.

Students next identify the rational reasons some people have for not liking or refusing to use safety belts, such as poor design, wrinkling effect on clothes, discomfort, restriction on body turning, or complex fastening procedures.

Although the reasons in the first list may seem like trivial excuses, they may indicate emotional resistance so deep-seated that the real reasons can't even be discussed. Intellectual arguments questioning the value of safety belts may arise from emotional barriers to their use. Efforts to change a person's behavior that are aimed at his intellect are bound to fail unless they also take into account the emotional components of his resistance. The class can therefore discuss what these emotional or nonrational reasons may be for why people may ignore obvious safety measures. Examples of such nonrational motives follow.

> *The it-won't-happen-to-me syndrome* according to which people feel, almost magically, that while what they are doing is dangerous, *they* won't get into an accident--because statistically the odds are so small, or because they think they are "more careful" than the people to whom accidents do occur, or because they have an excuse for believing they are "an exception to the rule."
>
> *Peer pressure* which makes people feel the risk of an accident is worth taking because being ridiculed by friends or other people is more frightening (e.g., when a group of young men rides a car, any one of them might be afraid of ridicule if he insisted on the driver obeying the speed limit).
>
> *Laziness* which prevents people from making a small extra effort to avoid a driving hazard (e.g., trying to find something in the back seat of a messy car or reading a map while driving, rather than pulling over to the side of the road to search the seat or read the map).
>
> *Inability to tolerate minor frustrations*, a form of immaturity that prevents people from doing mildly complicated

things or tolerating minor delays in order to realize a safety benefit (e.g., drivers who get annoyed by traffic lights and run yellow and even red lights).

Unwillingness to face reality--specifically the reality that driving is an extremely dangerous activity which can result in injury, disfigurement, suffering, expense, and death. Taking safety precautions is an admission that driving *is* dangerous--not a pleasant thought to be constantly reminded of. Many people would rather avoid such thoughts and therefore neglect the safety measures which remind them of the danger.

Fatalism, or the feeling that "nothing I can do will affect what happens to me; people are the victims of blind luck or chance" (e.g., drivers who feel accidents are impossible to predict and therefore impossible to avoid).

Hostility to authority which impels some people to ignore any suggestions, recommendations, or requirements made by persons in authority (e.g., people who refuse to obey signs that say, "No Passing" or, "Stay in Lane").

The class then identifies methods by which people can motivate themselves to drive carefully and methods which can be effective in motivating others to drive safely. These methods can be specifically designed to deal with the specific nonrational and rational obstacles to safe driving listed above. Identifying such methods is difficult and is best done by individuals who understand their own and their friends' personalities and can therefore tailor their safety campaign to their own or their friends' particular emotional and psychological make-up. Effective methods might include the following:

Place reminder signs on dashboards or visors (but without obstructing the driver's vision) stressing the safety practice to follow (e.g., "STOP DAYDREAMING!").

If a person gives up smoking, people admire him. If he goes on a diet and loses weight, people praise him. But if he practices safe driving habits, nothing happens. So, many motorists give up driving safely. Therefore, someone can promise *himself* a "reward" or provide a reward for someone else who is "good" (i.e., drives safely) for a certain length of time. The "reward" must be something "forbidden," and therefore especially attractive--that is, something the person feels he or she should not do, but would like to, and "lets" himself or herself do it in exchange for driving safely. Examples of rewards might be food (candy, ice cream, steak dinner), theatre tickets (in the orchestra section), or buying clothing.

Devise solutions which, while they require foresight, obviate the need for the dangerous driving habit (e.g.,

keeping maps in the house or at work which are conveniently available for reference before a trip to an unknown destination is begun).

Promise to engage in a safe driving practice or desist from an unsafe one for only a month, or a week, or a day. Essentially, this is the approach of Alcoholics Anonymous and of Gamblers Anonymous: "One day at a time." In this manner, the person doesn't feel he (or she) is giving up or engaging in something distasteful that he must do forever. In addition, once begun (or dropped), an activity can quickly become habitual or unmissed and less of a nuisance or frustration. For example, the confusion and resulting annoyance of fastening both a seat and a separate shoulder belt often disappears after a week or two of using them regularly, whereas initially it may seem like an enormous nuisance to buckle up because of the newness and complexity of the task.

Find a suitable role model whom a child or adult can emulate. For example, tell children that racing drivers use safety belts on and off the track. If you know of people whom children or friends or relatives admire who also happen to practice certain safety measures, point them out. Drivers can act as role models, too, by practicing safety measures conspicuously in front of passengers, such as wearing safety belts. (Some passengers are afraid of using seat belts because they think this will offend the driver.)

Use humor or criticism to encourage others to use safety practices. For example, a driver with passengers can, as he or she buckles into his safety belt, murmur, "I've paid a lot of money for these seat belts, so help me get my money's worth by using them!"

Special mention can be made of the use of "scare" tactics. As noted, practicing safety measures is a reminder of the life or death risk that is being taken by drivers and passengers. That is precisely why many people refuse to take adequate precautions. Therefore, using the fear approach to promote use of safety measures does not work, since it serves only to remind people of a danger which they are doing their best to forget.

After these methods for promoting driving safety have been discussed, each student identifies one unsafe driving (or other; e.g., bicycling or walking) habit he or she regularly practices and develops a strategy by which to change it. Students can do this alone or in small groups. Each student writes down what the dangerous behavior is that he or she plans to change and the methods by which he plans to do so. Each student keeps a diary of his efforts and of his *feelings* as he tries to change the behavior. After a stipulated period of time, for

example, a week, students report to the class the results of their campaign in terms of success achieved and feelings experienced.

Evaluation:

Students role play situations in which they seek to persuade a friend or relative to discontinue an unsafe driving habit.

Variations and Supplementary Activities:

Students can implement a strategy by which to persuade a friend or relative to adopt a safe driving habit.

Students can watch television and observe how frequently cars are used and whether they are driven safely or dangerously. Students can discuss the impact television's portrayal of automobile use and driving habits may have on the viewing public's own driving behavior.

Students can research why some seat belts have been poorly designed, are difficult to use, and cause discomfort.

ACTIVITY #11

Mini-unit Topic: Understanding Driving Habits

Approximate Class Time: 1½-2 periods

Capsule Activity Description: Students act out the parts in the script of "Fleming vs. Rondo--A Hearing." Then, without a script, they complete the hearing and try to come to a conclusion.

Goal:

To understand the probable causes of an accident and the contributions of the persons, automobiles, and the environment to the accident.

Concepts Treated:

- On-ramps and off-ramps are very dangerous places.
- Hitchhikers often contribute to accidents.
- Cars don't stop "on a dime."
- At highway speeds, a moment's inattention can lead to an accident.
- It is difficult to assign a single cause to an accident.

ACTIVITY

Divide the class into groups of six students. Assign each student a part from the script (Spirit Masters #1 and #2). Each group acts out the script. When they come to the end of the script, students should continue in their roles and try to bring the hearing to a close and arrive at a settlement.

Before the students begin to act out their own "hearing" remind them that traffic accidents are usually a combination of three elements: man, machine, and environment. Human failures, including negligence, carelessness, and drinking abusively, contribute to many accidents. The automobile occasionally has defects in braking, steering and other essential components which may cause or contribute to accidents, as well as poorly designed interior features which can cut or bruise occupants who are in an accident. Finally, the environment can foster crashes or increase their severity. For example, trees can obscure vision and faulty traffic signs can initiate accidents.

Allow enough time for the groups to arrive at a resolution (approximately 10-15 minutes might well be sufficient).

When the group hearings are over, each hearing officer states the resolution arrived at or the reasons for the impasse. Then as a class discuss the number and/or complexity of issues involved; any difficulties or problems groups had conducting their hearings; who they (as students) felt was to blame for the accident and why; and how the accident might have been prevented.

Evaluation:

Students write out their own resolution of the case and give reasons for their resolution.

If a student feels he/she cannot resolve the question of responsibility, he must write down what he feels he lacks in order to come to a resolution.

Students, on the basis of this accident, make suggestions for how future accidents at this interchange might be avoided.

Variations and Supplementary Activities:

If you have some gifted "actors" in the class, you may assign them the six parts of the scripted play and have them act the play in front of the rest of the class. When the "actors" come to the end of the script, divide the rest of the class into groups of six and have them carry on the hearing in their groups.

Students can investigate the extent to which accidents are caused by highway vandalism--theft and defacement of traffic signs and signals.

Students can investigate the role which poor road conditions (not including weather) play in accidents.

Students discuss the dangers of hitchhiking, in addition to the fact that it may cause accidents, as suggested in this play. Other reasons, for both the hitchhiker and the person who picks up a hitchhiker include being robbed, mugged, raped, or murdered.

Students can research statistics on these risks by interviewing a police officer, having one come to the class to talk about hitchhiking, or checking newspaper files on statistics for such crimes in the local community, the state, or the nation.

ACTIVITY #12*

Mini-unit Topic: Understanding Driving Habits

Approximate Class Time: 1-2 periods for either option

Capsule Activity Description: Students evaluate a pedestrian accident and determine the causes and responsibility.*

Goal:

To understand what is the most important cause of a pedestrian accident that had several causal factors.

Concepts Treated:

- Drinking often leads to automobile accidents.
- Weather is often a contributing factor in accidents.
- "Dart-out" into the street is a common cause of pedestrian accidents.
- Accidents often have multiple causes.

ACTIVITY

Option 1

Read the attached scenario to the class. Instruct the students they will be assigned parts in the resulting manslaughter case. The parts (which follow the scenario) should be assigned on a volunteer basis to ensure the best possible role play.

There are a minimum of 10 parts that can be assigned.

Judge	Police officer
Defense attorney	Defendant's co-worker
Defendant	Three Jurors (more may be assigned)
Babysitter	Prosecuting attorney

---

*Adapted from Peter Finn. *Innocent Until*. (Abt Associates Inc. Cambridge, MA: 1973).

Participating students read their role profiles. No one else should be aware of what these profiles contain so as not to spoil the authenticity of the trial. Students may elaborate on their role, but may not change the basic facts outlined in the profile.

There may be points at which you will want to intercede during the trial and you should feel free to do so. However, matters of courtroom procedure should be decided by the student judge even at the risk of some inaccuracy about actual rules of procedure.

Hold the trial at the front of the room with desks and chairs arranged in courtroom fashion. When it is time for the jury to deliberate, place desks in the middle of the room and have the rest of the class sit around the edge to listen in. The class is not to comment while the jury is deliberating as it would interfere with trial proceedings.

When the jury has reached a verdict (majority agreeing) it is announced and the judge sets the sentence if it is warranted.

Follow-up the trial with a discussion of the responsibility of an individual, be it an automobile driver or pedestrian, both morally and legally.

Option 2

Students read the scenario on the following page. The driver of the automobile involved has been charged with manslaughter--the accidental killing of someone because of his negligence or carelessness.

Each student is to imagine himself/herself as the judge of the case, and must decide

1. Who was to blame for the accident.

2. Whether the driver of the car should be punished and why.

3. If there is a punishment, what it will be.

Students then form small groups to discuss and agree on the above three questions. Groups report results to the class and respond to questions and comments from students.

Evaluation:

Students write their own scenarios and role profiles for various accident situations.

Variations and Supplementary Activities:

Students research legal procedure and alcohol and traffic safety.

Tape record the trial. Play back parts or all or it to discuss points of interest.

Invite an attorney or police officer to class to discuss rights of the citizen, traffic laws, and specific accident cases.

Scenario: Overview of the Accident

Brad Harris was on his way home from the office Christmas party. It wasn't a very good party this year so he had left early. All there was to eat and drink were some crackers and cheese and wine--he had hoped the party would be like last year's with a big band, champagne, and lots of food. To make up for it, he had had four or five glasses of wine. Brad always told himself that he couldn't get drunk on wine--just sleepy. As he was leaving the party, it started to snow--not very much, just enough to make the ground white. Instead of going straight home, he decided to stop off at the little grocery store around the corner from his apartment to pick up something for dinner. As he turned his car down the street by the store, something ran out in front of the car. It startled him, he slammed on the brakes, skidded, and felt a terrible thud. He jumped out of the car to see what he had hit. A woman was lying in the street.

Brenda Jones was frantic. The children weren't in bed yet, she couldn't find the shoes that matched her new dress, she knew she would be late meeting her husband at the restaurant, and the babysitter still hadn't arrived. Why did her husband have to work late tonight of all nights? It would have been so much easier if he had picked her up at the house rather than her having to drive downtown to meet him. Just then the doorbell rang. "Thank goodness the sitter is here," she thought. She ran to the door. As she opened it, the dog raced out in front of her. She took off after him, running by the babysitter who stared after her in bewilderment. All Brenda needed right now was for the silly dog to run away. The dog headed straight for the street. Suddenly there was a squeal of brakes and then a terrible silence. The babysitter raced to the side of the road. She couldn't believe what she saw.

Role Profiles

Judge: You must keep order in the courtroom and be completely impartial. You will also decide the sentence, if the defendant is found guilty of the charge by the jury.

Defendant: You know you were sober the night of the accident. You had had no more than three or four drinks, and then it was "only" wine. If it hadn't been snowing your car wouldn't have skidded and you wouldn't have hit that poor woman. You're almost positive you were only going 35 miles per hour. What a mess you're in.

Babysitter: You wish you had been able to see what had happened the night of the accident, but the people down the block were having a party, so there were a number of cars parked on the street blocking your view. But you're sure Mrs. Jones would never run into the street without looking first. That terrible man should never have been driving after having had so much to drink.

Prosecuting attorney: You know very little about this case other than that the man on trial has been accused of accidentally killing someone. You must prove that he was at fault. The man probably had too much to drink and was obviously driving too fast considering the poor weather conditions. The babysitter may be the only witness you have.

Defense attorney: You know very little about this case other than that the man you are defending is on trial for manslaughter--the accidental killing of someone because of his negligence or carelessness. The man said that he did not have very much to drink and he's sure he was perfectly sober. He is also sure he wasn't speeding. You will have to talk to the defendant in more detail to try to build up his case so that you can convince the jury that he is innocent of the charges.

Police officer: When you got to the scene of the accident, everyone was pretty well shaken. You immediately radioed ahead to have a breath test ready for the driver of the automobile when you brought him in to the station. You could tell he had been drinking--his eyes were bloodshot and he wasn't talking very clearly. When you administered the blood test to check the level of alcohol in his blood, something went wrong with the machine and it didn't register. You knew that by the time you found one that was working, the alcohol in the man's system would have disappeared. No matter, you know a drunk when you see one, and this was one. The accident was, you feel, clearly his fault.

Defendant's co-worker: Brad left the party long before you did. You had seen him just before he left because he had asked you if you wanted to go out for Chinese food. You wanted to stay at the party so you declined. Brad was fine when he left the party. You had been with him a good portion of the evening and you didn't see him drink very much at all. You know Brad pretty well--he would never be so irresponsible as to drive if he were drunk.

Juror 1: This is your first time as a juror. Your family couldn't believe it when your name was drawn for this task. Your husband didn't want you to go because he would have to take care of the kids while you were in court. Boy, does he hate doing stuff around the house. You know this is your duty and you will do a good job--listen to all the facts carefully and decide accordingly. You just hope your kids will be okay while you are away.

Juror 2: You've always wanted to be a member of a jury--and now is your chance. You know exactly how to act because you watch all the lawyer shows on television. In fact, you've seen all the old Perry Mason shows three times.

Juror 3: You're a little scared about being a juror--you hate to see anybody get hurt for any reason. If you were ever to make a mistake about something as important as a manslaughter case you could never forgive yourself. This whole thing sends chills up and down your spine.

MINI-UNIT 3

LEARNING ABOUT SAFETY BELTS

This may well be the single most important topic in any course on transportation safety. Safety belts save lives--and they should be worn by passengers as well as by drivers. Often, if a driver wears a safety belt, his passenger will also buckle up. Thus, it is important for your students to form the habit of putting on their safety belts. They may save not only their own lives but those of their passengers.

Among the concepts treated in this unit are the following:

- There is a high likelihood that any given motorist will be involved in an accident.
- Safety belts are effective in reducing injuries and deaths.
- In an accident, it is better to remain in the car than to be thrown from it.
- Many reasons which people give for not wearing safety belts are unconvincing.

There is also a research activity (#38) in Mini-unit 11 in which students try to discover why people resist wearing safety belts. You may want to have some of your students research this question.

MINI-UNIT 3 LESSON PLAN

Learning about safety belts

Activity #	*Activities*	*Class Time*
13[a] Spirit Master #3	DESCRIPTION: Students poll other students in the class about why they do or do not wear safety belts. GOAL: To understand the reasons why some people do and and others don't wear safety belts.	1 period
14 Spirit Master #4	DESCRIPTION: Class discusses how useful safety belts are in reducing injuries and fatalities in automobile accidents. GOAL: Appreciation of the fact that safety belts do save lives and prevent injuries.	1-2 periods
15	DESCRIPTION: Students answer "Dear Abby" letters from classmates on safety belt problems and implement a plan to persuade a friend or relative to use safety belts. GOAL: To be able to persuade someone to wear safety belts.	1-2 periods

[a]This activity also appears in Mini-unit 1.

Total Class Time: 3-5 periods.

ACTIVITY #13*

Mini-unit Topic: Learning About Safety Belts

Approximate Class Time: 1 period

Capsule Activity Description: Students poll other students in the class about why they do or do not wear safety belts.*

Goal:

To understand the reasons why some people do and other don't wear safety belts.

Concepts Treated:

- Concern for safety is a low priority for many persons.
- Many people don't believe that accidents will happen to them.
- Many people resist regulations, even if they are made for their own benefit.

ACTIVITY

Divide the class into pairs and have each pair interview one another about the use of safety belts. A sample poll that the students can use appears on Spirit Master #3. However, if they prefer, your students can make up their own interview guide or poll.

If there are enough students in the class who are licensed drivers, you may want to conduct two separate polls: one for drivers and one for passengers. Then compare the figures on safety belt usage and on the reasons for use or nonuse.

The poll and its results should raise the question why so many people seem to be unconcerned about safety and take unnecessary chances with their health and life. Statistics on lives saved through use of safety belts are given in Activity #14.

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*Appears also in Mini-unit 1.

After the class has finished polling one another, list the reasons given for not wearing safety belts on the chalkboard. The class should discuss them and suggest ways to overcome them.

Evaluation:

Students write or role play an interview between a psychologist and a radio or TV interviewer on the reasons why people tend to ignore issues related to automobile safety.

Variation and Supplementary Activity:

Students can debate whether, given the public's lack of concern on automobile safety issues, wearing of safety belts should be required by law.

ACTIVITY #14

Mini-unit Topic: Learning About Safety Belts

Approximate Class Time: 1-2 periods

Capsule Activity Description: Class discusses how useful safety belts are in reducing injuries and fatalities in automobile accidents.

Goal:

Appreciation of the fact that safety belts do save lives and prevent injuries.

Concepts Treated:

- There is a high likelihood that any given motorist will be involved in an accident.
- Safety belts are effective in reducing injuries and deaths.
- Most accidents happen at slow speeds.
- In an accident, it is better to remain in the car than to be thrown from it.
- Many people resist regulations, even if they are made for their own benefit.

ACTIVITY

Begin this activity by having students fill in the brief questionnaire about safety belts which is provided on Spirit Master #4. Tabulate the answers on the chalkboard. These answers will indicate where the areas of greatest knowledge and ignorance are.

Depending on what the tabulation shows, have the class discuss one or more of the following topics:

- The value of safety belts for children
- The importance of safety belts for passengers
- Myths about safety belt use

- Importance of using shoulder harnesses
- How safety belts can prevent accidents from happening

During the discussion, you may want to provide additional information, especially of factual material, based on the pages that follow the questionnaire. These pages are taken from the brochure *Automobile Safety Belt Fact Book*, which can be obtained for 55¢ from

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Stock Number 5003-0068
(Allow 10 weeks for delivery.)

You may also want to assign a student or group of students to study the pages (or the entire booklet) and report back to the class.

Evaluation:

Students in pairs role play a discussion between two people, one of whom maintains that safety belts contribute little or nothing to safety and sometimes are dangerous, while the other person tries to convince him differently.

Correct Answers to Questionnaire on Spirit Master #4

1.	F	8.	F
2.	F	9.	F
3.	T	10.	T
4.	F	11.	F
5.	F	12.	T
6.	F	13.	F
7.	T		

The Facts About Safety Belts*

Almost everybody has some conception of how seat belts contribute to personal safety. People know that belts reduce injuries caused by striking "hostile surfaces" in the car interior. (This is the so-called "second collision." The first collision occurs when the vehicle strikes, or is struck by, another object. The "second collision" occurs when the occupant of the vehicle is flung against the instrument panel, windshield, windows and side panels, roof, doorknobs, steering wheel, and so forth. Incidentally, any one occupant can have several "second collisions" during a single accident, depending on how much he gets tossed around inside the car.) People are also aware that belts increase safety by holding the occupants inside the car, avoiding injury from "ejection."

People are generally less aware of other contributions. For example, in a collision, the occupants can fly into, or roll over, each other; by keeping them in place, belts reduce their chances of becoming another source of injury to each other. Belts can also help to prevent accidents. By keeping the driver firmly in place, they increase his control of the vehicle. By keeping the driver in a comfortable position, they can reduce fatigue and make driving a little safer. Children who are firmly buckled-in are less likely to distract the driver's attention from the problems of driving. And so it goes.

However, the average person's knowledge in this area is probably superficial and somewhat vague. Maybe that is one reason why belt usage is so low--people "sort of know" that belts help, but they don't know exactly what they do or how well they do it. The short paragraphs below should help in that regard. They quote or paraphrase information that appears more extensively elsewhere.

It *can* happen to us: *there is a high probability that the average motorist will* be involved in an accident someday soon.

> Within the next 16 seconds--and every 16 seconds thereafter--somebody will be injured in a motor vehicle accident. Every ten minutes, someone will be killed. By the end of this week, about 1,000 people will have been killed and 40,000 injured. Within a year, this will total about 2,050,000 deaths and injuries.
>
> One thousand Americans are killed every week in traffic accidents. Almost 10,000 are injured every day. Annually, this approximately equals the number of babies born in the United States yearly. Statistically, this means that "every American born from today forward may be killed or injured in an automobile crash."

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*Excerpted from *Automobile Safety Belt Fact Book*. U.S. Department of Transportation, National Highway Traffic Safety Administration.

> Of the 139 drivers "at fault" (that is, responsible for the accident) at least half had been drinking. Even good drivers are at the mercy of bad drivers.
>
> Many motorists believe that it is not necessary to use belts when traveling at lower speeds. This is not true. More than half of the accidents causing injury or death occur at speeds less than 40 miles per hour. In rural areas, one-half of the fatal accidents occur at speeds under 50 mph. Almost 50 percent of all rural accidents happen at speeds under 30 mph.
>
> In one statistical analysis of 28,000 accident cases, fatalities of "non-belted" motorists occurred over the whole speedscale, starting as low as 12 mph.

Yes, they *really* do work: *some research findings about the effectiveness of safety belts.*

> If all passenger car occupants used lap belts, some 10,000 lives would be saved each year. Combination (lap/shoulder) belts would save some 20,000 lives.

In a study of 160 collisions,

> at least one occupant involved in each collision was wearing a combination (that is, lap and shoulder) belt. Ninety-six of the vehicles sustained heavy damage of the type that usually involves injury to the occupants. However, 99% of the occupants using combination belts had either no injury, or only minor injury.

In a study of the effectiveness of the three-point harness in 28,000 accident cases:

> Without the harness: fatal injuries throughout the whole range of accident speeds.
>
> With the harness: no deaths at speeds under 60 mph.
>
> The average injury-reducing effect of the harness was 40 percent to 90 percent.

From data on 14,261 occupants of passenger cars involved in rural crashes--2,359, or 16.5 percent, were wearing a lap belt (no shoulder restraint usage reported).

> In similar crashes, the unbelted occupants were injured substantially more frequently and more severely than the belted ones. In round figures, failure to use seat belt(s) increased injury risks as follows:

Of immediate death or severe injury...by 100 percent

Of more than trivial injury...by 70 percent

Of any injury...by 40 percent

For all practical purposes, use of seat belts prevented ejection from the vehicle. This effect was estimated to account for about one-quarter of the above risk differentials. The remainder, or three-quarters of the risk differentials are attributed to the effect of seat belt(s) in (1) preventing injury entirely and (2) alleviating injury sustained within the vehicle.

The probability of death is almost five times greater when the motorist is thrown from the automobile ("ejected"). If ejection could be totally eliminated in automobile accidents, about 5000 to 6000 lives could be saved each year.

Seat belts are the most effective way to prevent ejection.

Even if all they did was prevent ejection, seat belts could reduce accident deaths by about 25 percent.

During an accident, people may also come into violent contact ("impact") with the car itself--doors and side panels, steering assemblies, instrument panels, and roofs. These "second and third collisions" are a major cause of death.

Lap belts permit the occupant's upper torso to "jack-knife" forward and strike the car interior. However, the belts tend to reduce this impact to tolerable levels. By the time the belt-user begins to jackknife forward, the belt has already reduced the force of impact. Shoulder belts prevent jackknifing, reducing injuries even further.

In a collision, children who are riding in the rear seat tend to become "airborne." They fly forward and are injured by impact with windshields, rear-view mirrors, instrument panels, heaters, etc. They also cause injury to the front-seat passengers by hurtling into them.

An adult in the rear seat tends to injure his face and head against the front seat. Legs are trapped under the front seat and broken. Also, an adult in the rear seat will hurtle forward, causing injury to front-seat passengers.

Safety belts can even keep accidents from happening. When seat belts keep the driver behind the wheel, everyone is safer.

> *Item:* An unbelted driver took the corner too fast. He was thrown off balance and lost control of the car. A collision resulted.
>
> *Item:* A car sideswiped a parked car. The driver (unbelted) lost control of the car, which swerved across the roadway where it collided with an on-coming car. Little if any injury resulted from the collision with the parked car, but serious injury occurred to occupants of both cars in the head-on collision.
>
> *Item:* While crossing the Golden Gate Bridge, the right-front wheel of the bus ran over a cement block which had fallen onto the roadway. The impact threw the driver out of his seat, into the stairwell. Out of control, the bus ran over the side of the bridge. There was one survivor.

In short, by keeping the driver in place, in control of the car, seat belts can prevent accidents from happening and can keep mild accidents from turning into serious ones.

During an accident, children who are not belted become a hazard to everybody by becoming airborne and hurtling into other occupants. Unbelted children can also cause accidents. For example, a driver's attention was diverted when one of her children fell off the seat. She took her eyes off the road, swerved, and ran into a truck. The score:

Driver:	Minor bruises
Child 1:	Severe cut on head
Child 2:	Concussion
Child 3:	Near-fatal skull fracture
Child 4:	Severe head injuries

There are two points to observe: one, if all the children had been restrained, the accident would not have happened; two, if an accident does happen, seat belts protect the children from injury.

The point is, would you rather have a sore shoulder or a skull fracture? *Some answers to the rumors about injuries caused by safety belts.*

In the vast majority of accident cases, the seat belt presents no hazard to occupants except possibly in unusual and isolated instances. Under some extremely severe conditions, seat belts could cause serious injury; however, even so, the injured motorists would probably be even worse off without belts.

If a car is hit from the side at the point where a motorist is sitting, he is likely to be injured whether he is or is not wearing a seat belt. However, this happens in only a small proportion of all accidents.

Based on a study of 382 accidents:

In no case did a belt cause an injury that was more severe than the injury that would have resulted had a belt not been worn.

In an analysis of 28,000 accident cases:

Injuries caused by the safety belt were reported in 34 cases for drivers and 25 cases for the front-seat passenger.

	Driver	*Front-Seat Passengers*
Slight single rib fracture (no hospitalization; in two cases, belt was worn too loose)	10	10
Pain in chest and bruises	6	5
Slight to moderate fracture to chest bone	3	1
Bruises and soreness in lap area	3	2
Bruises and soreness in shoulder area	1	2
Fracture of collar bone	3	2
Slight superficial wound of neck	1	1
Soreness in back	2	
Slight injury, not defined		1
Multiple rib fracture	5	1

Most injuries reported to be caused by belts occurred in accidents in which occupants not wearing belts were seriously injured and in accidents at high speeds.

Therefore, the injuries caused by the seat belts were very slight in comparison with the injuries sustained by motorists not wearing belts in the same accidents.

Myths and Facts About Safety Belt Use

The Myth: If I'm just going shopping, why bother? I don't need a belt driving around town at low speeds.

The Fact: Injury causing accidents occur at all speeds. Furthermore, the accident rate is lower on turnpikes and freeways than on city streets.

The Myth: What if the safety belt traps me in a burning or submerged automobile?

The Fact: Without a belt, the motorist may be dazed or stunned by the crash; this would increase the time it takes to get out of the car. With a belt, the motorist is more likely to be unhurt, alert, and capable of getting out quickly. Therefore, the belt will speed up, rather than slow down, the escape process.

The Myth: Many motorists have been "saved" by being thrown out of the car.

The Fact: There is virtually no situation in which people are not better off inside the car.

The forces in an accident are so great that a person ejected from an automobile can be flung 40 to 50 feet or more, from the car. (One body was found 150 feet from the car from which it had ejected.) Whether this distance is covered through the air, scraping along the ground, or both, it is highly likely to have serious results. In other cases, the car door is sprung, the motorist falls out, and the car rolls over and crushes him. Despite any emotional fantasies about "being thrown clear," sheer common sense--based on extensive statistics--say it's better to stay inside the car.

> A station wagon carrying a family of six was struck from the rear. It ran off the road and rolled over. The mother flew out the door and was killed when her head hit a rock. Three of the children stayed in the car; all had broken bones, but lived. The father stayed in the car and was not injured. When the police arrived, the father was frantically searching for the eighteen-month-old boy his wife had been holding on her lap. Half an hour later, they found the baby. Otherwise unharmed, he had drowned because he was hurled into six inches of water.

The probability of death is almost five times greater when the motorist is thrown from the automobile.

Safety Belt Usage

Belt usage varies from trip to trip. The same person may wear a belt on one kind of trip, not wear it on another. For "short" trips--under 25 miles each way--the drivers report belt usage as follows:

Always use: 17 percent of the drivers

Sometimes use: 32 percent of the drivers

Never use: 51 percent of the drivers

For "longer" trips--26 to 150 miles each way:

Always use: 39 percent

Sometimes use: 26 percent

Never use: 35 percent

For "cross country" trips--over 150 miles each way:

Always use: 44 percent

Sometimes use: 28 percent

Never use: 28 percent

Ninety-five percent of all the trips made by these drivers were "short" trips: Of every 20 trips, 19 were "short." Only 66 percent of the drivers go on "longer" trips and only 33 percent make "cross country" trips.

The drivers who use lap belts most often also tend to use shoulder belts most often. Similarly, drivers who use lap belts least tend to use shoulder belts least.

ACTIVITY #15

Mini-unit Topic: Learning About Safety Belts

Approximate Class Time: 1-2 periods plus out-of-class time

Capsule Activity Description: Students answer "Dear Abby" letters from classmates on safety belt problems and implement a plan to persuade a friend or relative to use safety belts.

Goal:

To be able to persuade someone to wear safety belts.

Concepts Treated:

- Many people don't like to wear safety belts.
- Many reasons which people give for not wearing safety belts are unconvincing.
- Many people don't believe the factual evidence that safety belts save lives.

ACTIVITY

Students begin the activity by individually identifying a friend or relative whom they would like to induce to wear safety belts. Each student then writes a "Dear Abby" letter in which he or she states the problem and asks for advice on how to motivate this other person to wear safety belts. Sample letters appear at the end of the activity. Collect all the "letters" and duplicate them, providing each student with copies of the letters written by two to four other students. Each student then plays the part of Abby and writes responses to each letter, providing suggestions on how to go about persuading the person to use a safety belt. The responses are returned to the students to whom they apply.

Each student then develops a strategy by which to seek to persuade his or her friend or relative to wear safety belts. The strategy is written down. One or more weeks is then allowed for students to implement their plans; at the end of this time they report their results to the class. Particular attention is paid to the motivational techniques which seemed to work best and to the students' own feelings as they tried to persuade their friends and relatives. The activity concludes with a discussion of whether those methods which worked could be publicized and built into the government's campaign to promote safety belt use.

Two special considerations must be dealt with in conducting this activity. (1) Since it is likely that a majority of students in the class themselves do not use safety belts, it may be uncomfortable or hypocritical for them to try to persuade others to use them. One solution to this problem is for the students themselves to start wearing safety belts at least for the duration of the activity. (2) It may be unwise to engage students or some students in school activities which involve attempts to persuade parents (or even friends and other relatives) to adopt safety practices which are being recommended in class. To overcome the sensitivity parents may have to pressures they may feel are being stimulated by the school to interfere with their private lives, you can take these precautions.

Send a letter to parents before students engage in the unit of study describing the program and stressing the importance of inculcating safe driving habits in students.

Indicate to the students that the activity is voluntary, and that they should not try to convince anyone else to wear safety belts unless they themselves are convinced of the appropriateness of their actions, *or* are convinced that it is important to learn how people can be motivated to change their behavior, *or* are convinced that it is an important learning experience for them to see how *they* handle and react to a real life situation in which they try to motivate someone to change their behavior.

Evaluation:

The letters which the students write.

Variations and Supplementary Activities:

Students can conduct the activity only by responding to the sample "Dear Abby" letters provided on the following pages and comparing their responses.

Students can rewrite the "Dear Abby" letters provided into story completion exercises which other students complete. Students can also develop story completion exercises from scratch around a variety of interpersonal safety issues.

Students can mail one of their letters to the local newspaper and evaluate the newspaper's response.

Sample "Dear Abby" Letters

Dear Abby:

My mother and father make me wear my safety belts all the time, but I've noticed that *they* usually don't wear them whenever they drive someplace without me or my brother and sister. I don't think this is fair, and I'm also concerned that if they get into an accident, they'll get hurt. What can I do to make them wear safety belts?

Signed,

Baffled

Dear Abby:

My wife never wears her safety belt. I've talked to her about it now and then, pointing out how people who wear them are not hurt as badly and get killed less often when they have accidents than people who don't. She used to say it was too much of a nuisance to wear them and they wrinkled her clothing. We haven't talked about it in over a year now, but last week her mother was in a car accident in which she was badly cut and broke her ankle. She was not wearing a safety belt. I'm afraid that sooner or later my wife will be in an accident and get hurt. What can I do to persuade her to wear safety belts?

Signed,

Nervous

Dear Abby:

My husband (boyfriend) never wears his safety belt. He says he doesn't believe all the evidence the government has "fed us" about how they save lives and reduce injuries. He says you can't trust the government to tell the public the truth. He used to get very angry when I asked him to wear them, saying that the government has no business trying to make the public do things it doesn't want to do. He says it's up to the people to make their own decisions about whether to wear a safety belt, get drunk, or smoke marijuana. I'd like

to get him to wear the belt because he's a pretty bad driver sometimes and has already been in two accidents in the past year, although fortunately he wasn't hurt. What can I do to persuade him to use his safety belt?

Signed,

Ataloss

New letters can be developed by altering

- The reasons given for not wanting to wear safety belts
- The reasons given for wanting the other person to use safety belts
- The relationship between the persons involved
- The safety (other than safety belts) involved

MINI-UNIT 4

DRINKING AND DRIVING

Whereas the previous mini-unit dealt with what is perhaps the single most important step that can be taken to make driving safer--use of safety belts--this mini-unit deals with the most important factor in serious and fatal automobile accidents: alcohol.

Many of your students are driving cars, and many of them also drink--some regularly and some to excess. They need to know, therefore, what drinking does to a person's ability to drive well and safely. Even those students who do not drink and do not drive will be faced with situations where they are asked to ride as passengers in a car driven by a person who has been drinking. They need to learn how to protect themselves in such a situation.

Major concepts treated in this unit are

- Alcohol is involved in 50 percent of all fatal traffic accidents.
- Teenagers are more likely than other age groups to be adversely affected by drinking when they drive.
- Many teenagers choose not to drink.
- It is extremely difficult to dissuade someone who has been drinking from driving if he wants to.
- A drinking driver may hurt not only himself but many other people.

If you or your students feel the need to study the problems of drinking and driving more extensively, the Bibliography provides many works that may be consulted.

MINI-UNIT 4 LESSON PLAN

Drinking and driving

Activity #	*Activities*	*Class Time*
16[a] Spirit Master #5	DESCRIPTION: Students learn the facts about drinking and driving and discuss them. GOAL: To understand how alcohol affects people and makes driving more dangerous for them.	1 period
17	DESCRIPTION: Students discuss best course(s) of action if a friend or relative is about to ride with a driver who has been drinking excessively. GOAL: To be able to persuade someone not to ride with an intoxicated driver.	1-1½ periods
18	DESCRIPTION: Students role play situation in which a friend who has been drinking excessively is about to drive. GOAL: To understand the feelings of someone who has been drinking and who gets advice from sober people.	1 period

[a]Appears also in Mini-unit 1.

Total Class Time: 3-3½ periods.

ACTIVITY #16*

Mini-unit Topic: Drinking and Driving

Approximate Class Time: 1 period

Capsule Activity Description: Students learn the facts about drinking and driving and discuss them.*

Goal:

To understand how alcohol affects people and makes driving more dangerous for them.

Concepts Treated:

- Alcohol affects the reaction time of drivers.
- Alcohol increases the likelihood of accidents.
- Alcohol is involved in 50 percent of all fatal traffic accidents.
- Blood alcohol content is an objective measure of whether a driver was "under the influence."
- Body weight affects alcohol's effect on the drinker.
- Teenagers are more likely than other age groups to be adversely affected by drinking when they drive.
- Many teenagers choose not to drink.

ACTIVITY

Begin this activity by having students take a brief quiz to evaluate their grasp of the facts about drinking and driving. A sample quiz is provided on Spirit Master #5. Tabulate the answers on the chalkboard. Pass out duplicated copies of the information about drinking and driving provided at the end of Activity #3. Have students read and then discuss the information provided, comparing it with their answers to the questionnaire. Or, distribute copies of one of the brochures suggested in the Bibliography and have students read and discuss the data provided. Alternatively, use the information provided as the basis of a lecture about drinking and driving.

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*This activity also appears in Mini-unit 1.

You should guide the discussion of the class so that it concentrates on a specific aspect of the drinker-driver problem, such as the effects of alcohol abuse on driving ability; the relationship between alcohol use and traffic accidents; the special dangers of teenage alcohol abuse and driving; myths about drinking's effects on driving; and how to feel comfortable among drinking friends if your choice is *not* to drink.

If the class shows and maintains interest, you can guide the discussion to related issues, such as

- Why do people drink excessively when they know they will be driving?
- What are the excuses some drunk or alcohol-impaired people use to convince themselves they are capable of driving safely?
- Should friends or relatives try to convince each other not to drive after drinking excessively or not to ride with drivers who are alcohol-impaired?
- Are there ways people can be motivated not to drive when alcohol-impaired, not to drink excessively when they will be driving, and not to ride with drivers who are alcohol-impaired?

Answers to Sample Quiz on Spirit Master #5

1. c	6. a	11. c
2. d	7. c	12. h
3. c	8 d	13. b
4. d	9. d	14. d
5. c	10. b	

Evaluation:

The role play in Activity #18 can be used as an evaluation.

ACTIVITY #17

Mini-unit Topic: Drinking and Driving

Approximate Class Time: 1-1½ periods

Capsule Activity Description: Students discuss best course(s) of action if a friend or relative is about to ride with a driver who has been drinking excessively.

Goal:

To be able to persuade someone not to ride with an intoxicated driver.

Concepts Treated:

- It is extremely difficult to dissuade someone from doing something he wants to do.
- Persuasion often has to be gentle and indirect.
- Persuasion sometimes does not work.

ACTIVITY

Students write briefly (½-1 page) what they *should* do and what they *would* do in one or more situations in which a friend or relative is about to ride with a driver who has been drinking excessively. Sample scenarios may be found at the end of this activity.

During the following class session, students break into small groups and are given written instructions to discuss

- What they *should* do, how, and why
- What they *would* do, how, and why
- How any discrepancy between what students would and should do can be resolved.

Each group reports its conclusions to the class and responds to questions and comments from class and teacher.

Evaluation:

Students role play the scenarios, or others which they themselves create.

Variation and Supplementary Activity:

The activity can be conducted as a class discussion or written homework assignment. Students can role play the scenarios.

Sample Scenarios

You are at a party and your best friend has just accepted a ride home from another friend who is drunk. No one else lives near him except a boy he dislikes for having stolen his girlfriend last year. You have no license and no money and you know your friend doesn't have much money. He lives 2½ miles away. It is a cold winter night, around 11:30 p.m. What, if anything, *should* you do? Why? What, if anything, *would* you do? Why?

Your 17-year-old sister has a date with her boyfriend. You just let him in the door and he's obviously drunk, since he knocked over a lamp trying to sit down and has talked only nonsense. You go upstairs and tell your sister he's drunk and she tells you to mind your own business. You know they are going in his car to a party on the other side of town. Your parents are next door with friends. What, if anything, *should* you do? Why? What, if anything, *would* you do? Why?

Your father has been drinking heavily and is about to drive your mother to do some grocery shopping. It is already dark and the roads are still icy from the previous day's snowstorm. She has no license and there is no food in the refrigerator. What, if anything, *should* you do? Why? What, if anything, *would* you do? (Or, what would you *want* to do?) Why?

Scenarios can be altered by varying such factors as

- How drunk the driver is
- The relationships between the three people involved
- How badly the passenger needs the ride

ACTIVITY #18

Mini-unit Topic: Drinking and Driving

Approximate Class Time: 1 period

Capsule Activity Description: Students role play situation in which a friend who has been drinking excessively is about to drive.

Goal:

To understand the feelings of someone who has been drinking and who gets advice from sober people.

Concepts Treated:

- Many drivers become offended when their ability to drive is questioned.
- In many situations, there is a conflict between one's duty to oneself and one's duty to a friend.
- A drinking driver may hurt not only himself but many other people.

ACTIVITY

Students role play confrontation between friends, one of whom has been drinking excessively and is about to drive. Sample role profiles may be found on the following pages.

At the end of each role play, participants read their role profiles to the class and discuss the feelings they experienced while acting. Other students discuss how they might have responded to the situation. The teacher adds his or her own comments.

Evaluation:

Students create a situation in story form in which a person who has been drinking excessively is about to drive, but is confronted by a friend. However, students do not conclude the story, but rather stop at the point where the friend has the opportunity to intervene. Then, students exchange stories and write two different endings to the other student's story: one telling how it would probably end and one telling how it *should* end.

Sample Role Profiles

Friend

Your best friend is pretty drunk and is ready to drive his girl home. You feel he's in no condition to drive and even if he doesn't hurt himself, his girl, or someone else, he's liable to get arrested and lose his license. But you know you're going to have a tough time convincing him not to drive when he's with his girl. She'd like him not to drive, but is afraid to say so. She doesn't have a driver's license, either. In addition, he has no money to take a taxi and there are no buses around this neighborhood.

Girlfriend

Your boyfriend at this party has been drinking quite a bit, something he usually doesn't do. You've kidded him about it, trying to get him to slow down, but he won't take the hint. Now he's ready to drive you home and you'd rather he didn't drive, but you're afraid to tell him not to, especially since you don't know how to drive.

Drinking Driver

You are with your girlfriend at a party and have had quite a bit to drink, but you're not too drunk to drive her home. Why, she doesn't even have a license to drive. Besides, she lives only four miles away and the roads should be pretty empty at 11 p.m.

Friend

You and four friends have been drinking in the park. Three of them start to walk home, but the one who owns the car and is really drunk stays to drink a little longer with you. He is going to insist on driving you home because he won't admit he can't hold his liquor and anyway, seems to get his kicks from doing risky things. You know that if you refuse to go with him, he will still try to drive home. Now that it's 11 p.m., he starts to stagger up to leave.

Drinking Driver

You've been drinking in the park with four friends. Three have started walking home, and now you're almost ready to give the fourth a ride home. You've had quite a bit to drink, but it's a challenge, you feel, to try to drive when you're drunk. You start to get up to go home, and you'll insist on giving your friend a lift--it's more fun driving with someone when you're drunk. Your friend is usually a sissy and you want to help him (her) get over that.

New role profiles can be created by varying

- The amount drunk by the driver
- The relationship between the driver and the friend
- The reasons the driver wants to drive
- The extent to which the driver knows he is incapacitated
- The amount of money the driver has, the distance to his home, and the availability of other forms of transportation

MINI-UNIT 5

BUYING A CAR

Some of your students will soon be buying, or thinking about buying, their first car, if they haven't already done so. Daily they are exposed to the advertising slogans of car manufacturers as they watch television or read magazines. Few of these slogans, however, address the safety considerations a purchaser should have in mind as he tries to decide what kind of car to buy.

Purchasers need guidance concerning the safety factors they should consider. Indeed, for many purchasers, it may be a service merely to point out that safety is something the potential car buyer should keep in mind, together with power, style, energy usage, and price.

In the larger context of consumer education, students need to learn what it means to be a careful shopper and to overcome any hesitancy they might have about making careful inquiries concerning any product they are thinking of buying.

Major concepts treated include

- Basic safety items on a car are brakes, tires, windshield wipers, headlights and brake lights, turn signals, side mirrors, and safety belts.
- Shopping for a safe car requires thought and planning.
- Information is often available, if you ask for it.
- A safe car can also be powerful, good-looking, fast, and fun to drive.
- Safety is compatible with freedom and a sense of power.

Because cars are so dear to most teenager's hearts, and because so many look forward to buying their first car, this unit should be very attractive to your students.

Activity #39 in Mini-unit 11 is a research activity in which students learn how to get the information that will enable them to buy the kind of car they want to have. This activity can be used as an enrichment for this unit.

MINI-UNIT 5 LESSON PLAN

Buying a car

Activity #	*Activities*	*Class Time*
19[a]	DESCRIPTION: Students discuss the safety considerations to keep in mind when buying a new or used automobile. GOAL: To know which features make a car safe and which merely add convenience.	½-1 period
20	DESCRIPTION: Students role play purchasers buying cars. GOAL: To learn the skills and behaviors of being a careful shopper.	½-1 period
21	DESCRIPTION: Students analyze automobile advertisements and discuss why safety considerations are not usually included in the sales pitch. GOAL: To discover what the sellers of automobiles consider to be the primary motives of Americans for buying cars.	1 period
22	DESCRIPTION: Students discuss America's alleged "love affair" with the automobile and how it may relate to automobile purchase and driving safety. GOAL: To understand some of the underlying motivations for wanting to own and drive a car, and to reconcile these motives with the need for safety.	1 period

[a]Appears also in Mini-unit 1.

Total Class Time: 3-4 periods.

ACTIVITY #19*

Mini-unit Topic: Buying a Car Approximate Class Time: ½-1 period

Capsule Activity Description: Students discuss the safety considerations to keep in mind when buying a new or used automobile.*

Goal:

To know which features make a car safer and which add merely convenience.

Concepts Treated:

- A used car requires more attention to safety aspects than a new one.
- Some optional equipment contributes to safety, but some does not.
- Basic safety items on a car are brakes, tires, windshield wipers, headlights and brake lights, turn signals, side mirrors, safety belts.
- The National Highway Traffic Safety Administration can help identify automobile models that have been recalled by manufacturers because they have safety-related defects that require repairs.

ACTIVITY

The class divides into small groups and each group is instructed to develop a list of considerations the purchaser of an automobile should have in mind in order to buy a safe car. After developing lists, groups present them to the class and a master list is prepared. Considerations which are peculiar to the purchase of secondhand cars should be singled out with an asterisk or other identifying mark. You can supplement the students' suggestions with the following safety considerations:

- *Size and weight.* Given similar designs, heavier cars may provide greater protection to occupants in car-to-car crashes than do

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*Parts of this activity also appear in Mini-unit 1.

lighter cars. It is expected that the average weight of automobiles will decline substantially in future years, as a result of national efforts to conserve energy. This change will make weight a less relevant safety factor.

- *Optional equipment.* Examples of some items that may contribute to safe driving are high-quality tires--radial, bias-ply, and bias-belted; day/night rear-view mirror; rear window defroster or defogger; and a remote-control driver's side outside mirror.

- *Visibility.* Are there "blind spots" which make it difficult for the driver to see the road--out the back window, or the dashboard--because of the way the automobile is built?

- *Brakes and tires.* If the car is used, are these in prime condition, or are repairs or replacements needed?

- *Defects.* For used cars, a purchaser should check to learn whether the model he or she is considering buying has been recalled by the manufacturer because of a safety-related defect--*and* whether the particular car itself has, in fact, been taken to the dealer for the required repairs. (Forty percent of all recalled cars are not taken back to a dealer for repairs.) The procedure for checking is simple: Telephone (at no charge) the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA).* NHTSA can tell you immediately whether the model has ever been recalled because of a safety-related defect. If it has, NHTSA will send you, by return mail, a postal form on which you enter your name, address, and vehicle identification number. Send the form to the appropriate manufacturer, who will then notify you whether the particular car you are considering has been properly repaired to eliminate the safety-related defect.

- *Owner's manual.* Make sure this is provided with a used car.

- *Safety record.* Research the record of this make and model in past years.

- *Prior history* (for used cars). Ask for the record of past safety inspections, repairs, and accidents.

- *Safety belts.* Check to see that the car has three-point safety belts, and that they can be adjusted to fit properly.

- *Brakes.* Check consumer information sources to learn which combination of options is best for stopping distance (e.g., disc brake/drum brake/power-assisted brake). *Note:* Power brakes do not assure

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*To call NHTSA, dial its toll-free Hotline number: (800) 424-9393. NHTSA's mailing address is Office of Consumer Services, NHTSA, Washington, D.C. 20590.

better braking in terms of stopping distance or controllability than do conventional brakes. On the contrary, when there is a failure in the power boost system, "power brakes" require much greater foot pressure to use than do conventional brakes.

- *Odometer.* If the car is a used one, ask for a written mileage disclosure statement. The Federal odometer law (part of the Motor Vehicle Information and Cost Savings Act) requires that the seller must provide the buyer with a written statement of the registered mileage. For complete details on this requirement, write to NHTSA* for a free copy of the fact sheet "Consumer Protection Under the New Antitampering Odometer Law."

After compiling a complete list, the class breaks into small groups again and discusses the following questions:

1. How can purchasers determine how safe the cars are which they are considering buying? (E.g., read appropriate literature; test drive the vehicle, testing for brakes, steering and visibility in particular, and fit of safety belts; take car to an independent mechanic for inspection)

2. What sacrifices might a purchaser have to make in order to buy the safest possible car? (E.g., additional costs, appearance, speed, power)

3. Few people consider safety when buying a car. Why not? Is it possible to motivate people to include safety considerations as one of their criteria in selecting what car to buy? How?

After discussion, the groups present their results to the class and comment on each other's presentations.

Evaluation:

Students are given the description of a new or used automobile and, in writing or orally, explain whether they would purchase it based on safety considerations alone.

Variation and Supplementary Activity:

Students can interview driver education teachers or invite them to class to discuss what safety considerations should be included in the decision to buy a car.

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*To call NHTSA, dial its toll-free Hotline number: (800) 424-9393. NHTSA's mailing address is Office of Consumer Services, NHTSA, Washington, D.C. 20590.

ACTIVITY #20

Mini-unit Topic: Buying a Car Approximate Class Time: ½-1 period

Capsule Activity Description: Students role play purchasers buying cars.

Goal:

To learn the skills and behaviors of being a careful shopper.

Concepts Treated:

- Shopping for a safe car requires thought and planning.
- Information is often available, if you ask for it.
- Both purchasers and sellers behave in ways that are oriented to their own goals.
- The seller has certain obligations toward the buyer.
- The buyer needs to be clear about what he wants.

ACTIVITY

Students take the parts of car purchasers and car sellers (either salespersons or private sellers) and role play buying a car. Sample role profiles are on the following pages.

After each role play, participants read their role profiles to the class and discuss the feelings they had while role playing--were they angry at the seller for being evasive, embarrassed at being so aggressive with the seller, defensive at being questioned so closely by the purchaser, afraid of buying an unsafe car or of losing a sale to a customer? Nonparticipants discuss what they would have done had they been involved. Class identifies the techniques used by the purchaser to obtain information and the methods, if any, used by the sellers to withhold information or answer dishonestly. Class lists the specific information each purchaser requested about safety and considers whether additional information should have been sought.

After one or more role plays, the class should be encouraged to write role profiles to act out.

Evaluation:

Students write their own scenario and role profiles.

Variations and Supplementary Activities:

The activity can be a class or small group discussion.

The activity can be developed into a story completion exercise.

Sample Role Profiles

Purchaser

You are in the market for a car. You need it to get to your part-time job and you also think it would help your social life if you had one. You know what kind of car and model you want, but you can't afford a new one with the amount of money you have saved and the income from your job. You have seen a newspaper ad in which someone advertises the very kind of car you are looking for at a pretty good price. The ad doesn't say what condition the car is in. You hope it is a safe car, because if you buy it, you won't have any money left over to pay for repairs for at least four months.

Seller

You are selling your old car. You have advertised it in the newspaper and have a potential customer. You know that the brake linings on the car are pretty well worn out and probably are good only for another one or two thousand miles before needing replacement.

Purchaser

You have always wanted to buy an attractive new car, but until now you never could afford one, because you were still in school. But now you have been out of school for a year and have saved a couple of thousand dollars from your job and you have a five hundred dollar present that your grandfather gave you when you were graduated from high school. You'd like to get a car now, because next fall you will be going to junior college. You'll need a car to get there and you also won't be making any more money then. You have just walked into Abe's Auto Sales showroom and been greeted by a salesperson. What do you say about the kind of car you want and what options you will consider?

Salesperson

You are a salesperson in Abe's Auto Sales Store. You get a commission on every car you sell--and, if you sell enough, a special bonus

at the end of the year. But you've found you have to be careful these days. Car buyers aren't as careless as they used to be about the cars they buy. They're concerned about economy, guarantees, and safety. In fact, here comes a serious looking young prospect right now. You wonder what kind of car he (she) wants and whether you'll be able to sell him (her) an expensive model with lots of extras.

Purchaser

You are in the market for another secondhand car. The one you have now needs a new muffler, a ring job, and three new tires. But you know the last time you bought a secondhand car--in fact the car you're now driving--it almost got you killed because it was in such poor shape. This time you're determined to get a car that won't get you into an accident the first month you've owned it. You have just walked into Susan's Secondhand Car Lot to look around for a car you can afford. A salesperson is coming over to you to see what you want. What do you say you are looking for in a car?

Salesperson

You work in Susan's Secondhand Car Lot as a salesperson. You get a commission on every car you sell, so naturally you like to sell not only as many cars as possible but ones that are as expensive as possible, too. You have just spotted someone looking over the cars in the lot and walk over to see if you can sell one more car this week.

Additional role profiles can be created by varying

- The type of car the purchaser wants (e.g., sports car, station wagon, camper)
- Special safety concerns (e.g., for maximum visibility, for carrying young children, for pulling a trailer)
- The amount of money the purchaser can afford to spend
- The extent to which the purchaser is also concerned about other aspects of a new automobile which may conflict with safety considerations (e.g., speed, power, style, cost)

ACTIVITY #21

Mini-unit Topic: Buying a Car

Approximate Class Time: 1 period

Capsule Activity Description: Students analyze automobile advertisements and discuss why safety considerations are not usually included in the sales "pitch."

Goal:

To discover what the sellers of automobiles consider to be the primary motives of Americans for buying cars.

Concepts Treated:

- Cars are sold through the use of a variety of different sales appeals.
- Cars are bought for a variety of reasons.
- All features of a car, including safety features, cost money.
- A safe car can also be powerful, good-looking, fast, and fun to drive.

ACTIVITY

Prior to the activity, students are instructed to bring to class different automobile advertisements--including, if possible, tape recordings of television and radio advertisements, as well as magazine and newspaper advertisements. The class then divides into small groups to analyze the advertsements. Each group examines the same three to six advertisements, answering the following questions:

1. What are the major methods by which the companies are seeking to persuade the public to buy their cars (style, economy, power, sex appeal, safety)?

2. How important are safety features as an inducement? What specific safety pitches do the ads make?

3. Do safety features take away from other features or can they be combined with them?

4. If safety is not a major method by which automobile companies try to persuade the public to buy their cars, why is so little stress placed on this aspect of driving? Is there little basis for competition between car companies in terms of safety features? Is the public not motivated to choose cars on the basis of safety considerations? Do automobile manufacturers want to avoid competing with one another to provide expensive safety features?

5. If car companies competed to sell cars primarily on the basis of safety claims, would they sell as many cars? If one company tried to sell a car on the basis of the superior safety features and another tried to sell a basically similar car touting its speed, styling, or economy, which car would the public be more likely to buy? Why?

Small groups present their conclusions to the class and check for similarities and differences. General discussion follows on why the public seems more concerned about styling, power, and economy in their cars than in safety features. Given these priorities, can anything be done to change the criteria Americans use for deciding what automobiles to buy?

Evaluation:

Students write their own advertisements for a car in which the stress is on that model's superior safety features.

Variations and Supplementary Activities:

Students in small groups develop their own advertisements for automobiles and compete on the basis of safety features. Each group can develop a different advertisement, and students from another class can "shop" among the different groups to "purchase" the cars which appeal to them the most.

Students can read Ralph Nader's *Unsafe at Any Speed* and evaluate his claim that the automobile industry has engaged in collusion to avoid competing on the basis of safety features.

Students can debate the topic, "Resolved that the automobile industry should take upon itself the responsibility for educating the American public to the importance of considering safety features when purchasing a car."

ACTIVITY #22

Mini-unit Topic: Buying a Car Approximate Class Time: 1 period

Capsule Activity Description: Students discuss America's alleged "love affair" with the automobile and how it may relate to automobile purchase and driving safety.

Goal:

To understand some of the underlying motivations for wanting to own and drive a car and to reconcile these motives with the need for safety.

Concepts Treated:

- Cars have great utility.
- Cars also serve some nonutilitarian purposes, such as a sense of power, freedom, privacy.
- Getting a driver's license is an American rite of passage.
- In many parts of the country, ownership of a car is a necessity.
- Safety is compatible with freedom and a sense of power.
- People in dangerous professions, like racing drivers, are very safety-conscious.

ACTIVITY

The following statement expresses the feelings of many American teenagers when they first get their driver's license:

> It was the biggest event in my life. I had been looking forward to it for at least four years, and the last year was an agony of waiting for my dream to come true: a car! At last I'd be able to do all the things I'd been waiting for.

Write down all the reasons *why you think this young man was so anxious to be able to drive.*

During the following class session, students break into small groups and are given written instructions to read each other's papers and answer the following questions:

1. What similar responses did you give for why the youth was so happy to be able to drive?

2. What other reasons do people have for driving cars?

3. Which of these reasons, if any, might motivate people to purchase cars without considering safety aspects?

4. Which of these reasons, if any, might stimulate people to drive unsafely?

5. Is it possible to change Americans' attitudes about cars, and if so, how?

6. Is the "love affair" cooling, and if so, why?

The groups report their conclusions to the class and respond to comments and questions from class and teacher. The class should try to come to conclusions about how safety needs relate to the reasons for wanting to own or drive a car. The class should address these questions:

- Most teenagers get a sense of independence when they first obtain a driver's license. Can you feel independent in a safe car?

- Can you feel independent while driving safely or does that make you feel constrained?

- Can you give some examples of people who are very daring and very adventuresome but also very safety-conscious? (Examples might be astronauts and racing car drivers.)

- Is it possible to drive a car in such a way that you simulataneously feel free, powerful, and safe?

The teacher also raises for discussion possible explanations for alleged fondness for cars that are not discussed by students and which also be responsible for unsafe driving habits and neglecting safety considerations when buying a car. Explanations for automobile infatuation include the effects of advertising, materialism, laziness (as opposed to energy needed to walk or bicycle), fast pace of life in industrial countries requiring speed and frequent trips, the desire for privacy (as opposed to trains and buses), and the lack of adequate public transportation.

Evaluation:

Students role play a scenario in which parent and son or daughter reach a compromise in their argument over the child's desire for a fast, powerful, or sporty car and the parent is concerned about buying a safe car.

Variation and Supplementary Activities:

Students can poll residents or other students on reasons they wanted a driver's license when they came of age.

Students can discuss (and observe) whether certain types of cars lead to more unsafe driving habits than other cars (e.g., sports cars) or whether unsafe drivers buy these kinds of cars.

MINI-UNIT 6

MAINTAINING A CAR AND COPING WITH BREAKDOWNS

Many teenagers like to tinker with cars--their own, their friends', or their parents'. This interest in working on cars can and should be put to good use by emphasizing that maintaining a car in good running condition is one of the best safety precautions a driver can take. Conversely, a car that is not well maintained presents a great safety hazard. A driver in an untrustworthy car will do dangerous things such as "sliding" through a red light because he is afraid that the brakes may not hold if he tries to stop suddenly.

Furthermore, if a poorly maintained car breaks down on a highway, this may put the driver and passengers in great danger as they try to obtain help. They may have to cross a busy road, for example, or they may stand on the shoulders of the road, too close to the driving lanes, in order to flag down help. All in all, there is plenty of motivation for keeping one's car in good running condition.

Concepts treated include

- Maintaining a car properly is a definite contribution to safety.
- Some maintenance tasks can be performed by the owner or operator.
- Proper maintenance prevents breakdowns and can save money.
- Breakdowns are more than an inconvenience, they are dangerous.

MINI-UNIT 6 LESSON PLAN

Maintaining a car and coping with breakdowns

Activity #	*Activities*	*Class Time*
23	DESCRIPTION: Students question automobile mechanics concerning regular maintenance that car owners themselves can perform or should have garages perform in order to keep their cars running safely. GOAL: To know (1) when cars need maintenance services, (2) which services an owner himself/herself can perform, and (3) which services require the the skills of an experienced mechanic.	2-3 periods
24 Spirit Master #6	DESCRIPTION: Students poll each other, or their parents, or neighbors, about automobile breakdowns they have had. They discuss whether the right actions were taken to cope with the breakdown. GOAL: To understand how automobile breakdowns are caused and how to cope with them.	2-3 periods

Total Class Time: 4-6 periods.

ACTIVITY #23*

Mini-unit Topic: Maintaining a Car and Coping with Breakdowns

Approximate Class Time: 2-3 periods, plus out-of-class time

Capsule Activity Description: Students question automobile mechanics concerning regular maintenance that car owners themselves can perform or should have garages perform in order to keep their cars running safely.*

Goal:

To know (1) when cars need maintenance services, (2) which services an owner himself/herself can perform, and (3) which services require the skills of an experienced mechanic.

Concepts Treated:

- Maintaining a car properly is a definite contribution to safety.
- Some maintenance tasks can be performed by the owner or operator.
- Some maintenance tasks must be performed by an experienced mechanic with the proper tools.
- Proper maintenance prevents breakdowns and can save money.

ACTIVITY

Students develop a questionnaire (see sample at end of this activity) and ask car mechanics what maintenance tasks car owners themselves can perform to keep their cars running safely and when cars should be taken to mechanics for maintenance and repairs to ensure safe driving.

The class breaks into small groups and each group develops its own questionnaire. The groups can then either administer their own questionnaires or as a class develop a master questionnaire which every group uses. Each group also identifies mechanics in the community whom the students can interview.

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*Part of this activity appears also in Mini-unit 1.

After administering the poll, students compare results and develop a master list of maintenance tasks related to safe driving and divide them into two categories: tasks which the average owner can do and tasks for which a trained mechanic is necessary. Students discuss whether and how people can be motivated to maintain their cars regularly.

A committee is appointed to research and report back to the class on these questions. What are your state's requirements for automobile inspection? How often must cars be inspected? What parts are inspected? What tasks must automobiles perform during inspection? Class compares state requirements with their own master list of maintenance tasks related to safe driving.

Evaluation:

Students role play confrontation between a mechanic and a car owner about a maintenance task. The mechanic insists it must be done or the car won't be safe to operate; the owner claims that the task is not necessary and that the mechanic is simply trying to get money out of him.

Variations and Supplementary Activities:

Using the chart on the next page as a guide, students develop a test to administer to other students about maintenance and safety. One test might simply consist of listing some or all of the items in the left-hand column (repair needed) and ask the person who takes the test what the risk is if the repair is not made.

Students can invite a mechanic to class to explain the relationship between maintenance and safety and what maintenance tasks should be performed to keep cars runnings safely.

Students administer the sample questionnaire at the end of this activity to students and faculty in the school's automotive department.

AUTOMOBILE MAINTENANCE AND SAFETY CHART

Repair Needed	*Risks Involved*	*Further Explanation*
Tires with little or no tread	a. Skidding, especially in wet weather b. Blow-outs	Should be 1/4 inch of tread on all parts of each tire, including spare.
Inoperative horn	Inability to signal other cars	
Noisy muffler	Carbon monoxide poisoning Difficulty hearing other vehicles	
Broken windshield wiper Poorly operating wiper	Impaired visibility	Combination of rain, darkness, and faulty windshield wipers is particularly dangerous.
Improper tire pressure	Skidding, especially in wet weather Blow-outs, especially over-inflated tires in hot weather at high speeds Uneven braking	Purchase of pocket tire air pressure gauge can be well worthwhile in terms of convenience. Keep it in glove compartment.
Faulty heater	Inability to melt snow on windshield Carbon monoxide poisoning Distraction of being too cold to drive safely	Particularly in winter, a faulty heater is dangerous when windows are kept closed.
Rusted tailpipe	Carbon monoxide poisoning	May require getting down on the ground and looking underneath the car.
Broken headlight or tail light	Poor visibility at night Inability to signal other cars	Periodically have someone watch while you test lights or get out and walk around car yourself.
Broken directional signal	Inability to signal other cars	Same as above.
Unbalanced wheel alignment	Difficulty in steering	Can detect this by over-steering tendency when you drive.
Low brake fluid	Brake failure	Ask mechanic to check for this or read owner's manual and do it yourself.
Inoperative or poor parking brake	Parked car on an incline "running away"	

Sample Questionnaire of Mechanics on Car Maintenance and Automobile Safety

1. What regular maintenance tasks are necessary to keep a car running safely--for example, replacing tires which have no tread left?

2. What kinds of accidents take place because regular maintenance work was not performed on a car?

3. Which maintenance tasks related to safety can the average car owner perform him or herself?

4. How often or when should each of these maintenance tasks listed in Question 1 be performed?

5. In your experience, do car owners tend to have this kind of maintenance work performed regularly or do they wait until something happens which forces them to have it done?

5. Why do you think drivers who do not regularly keep their car in safe running condition fail to do so?

ACTIVITY #24

Mini-unit Topic: Maintaining a Car and Coping with Breakdowns

Approximate Class Time: 2-3 periods

Capsule Activity Description: Students poll each other, or their parents, or neighbors about automobile breakdowns they have had. They discuss whether the right actions were taken to cope with the breakdown.

Goal:

To understand how automobile breakdowns are caused and how to cope with them.

Concepts Treated:

- Breakdowns are more than an inconvenience, they are dangerous.
- Having proper equipment in a car can help in a breakdown.
- Panic makes a breakdown worse.

ACTIVITY

Students design a questionnaire to poll one another, their parents, or neighbors on the breakdowns they have had and what was done in their particular situation. The questionnaire can be developed by the class as a whole or by brainstorming for questions in small groups with the results pooled for a class questionnaire. A sample polling instrument is on Spirit Master #6 and may be used as a sample or revised for your particular needs.

As the questionnaires are completed, students transfer their information to a large chart similar to the one on the following page.

Age	Sex	Nature of Breakdown	Location	Time of Day	Weather	Length of Time Stranded	How Fixed	Equipment Used or Needed	Feelings While Stranded	Comments
Under 18										
19-21										
22-29										
30-39										
40-59										
60 or over										

When all questionnaires have been completed and the information gathered on the chart, respond as a class or in small groups to the following questions:

- Which age group/sex has the most/least problems in breakdown situations?
- Do weather, location, time of day contribute to the problems associated with breakdowns?
- What equipment is most often used or could be used, if available, in a breakdown?
- What are the feelings most often experienced in a breakdown?

Next, discuss as a class whether each breakdown (or each kind of breakdown, if there are too many) was handled in the right way.

- Was the car removed from traffic properly, quickly and safely?
- Were emergency flashers used?
- Were flares or reflectors available?
- Was a fire extinguisher available?
- How was the necessary repair effected?

The reading on the next pages, taken from a booklet published by the United States Department of Transportation, gives valuable advice on how to cope with emergencies. Students should use the information given there to judge whether the emergencies they are discussing were handled properly.

Evaluation:

Students draw up a checklist of automobile breakdown do's and don'ts.

Variations and Supplementary Activities:

Invite a representative from the police department or local automobile association (AAA, ALA) to come to class to speak on safe breakdown behavior and demonstrate necessary automobile emergency/ breakdown equipment.

A checklist is distributed to those persons who were polled.

Throttle Sticking*

You're driving along a highway and for some reason you must slow down. You reduce the foot pressure on the accelerator (which controls the throttle), but the accelerator pedal does not return to its normal position and the car continues to speed on. Or, for some reason the accelerator pedal is suddenly depressed to the floor, and the car lurches forward at a high rate of speed, even though you've taken your foot off the accelerator. What can you do?

If this situation occurs on the open highway and you have a lot of distance between you and other traffic, you can first lightly tap the accelerator pedal a few times to see if it will spring back to its normal position. If this fails, try to pull the pedal up with the toe of your shoe, or have a front seat passenger reach down and do it. Don't reach down yourself because you must keep your attention on the road.

If you must slow down or stop rapidly, turn your ignition to off and apply the brakes. But be sure you turn the key to off, not lock. On most cars you can't turn the steering wheel when the key is in the lock position. Also note, if you have power steering and power brakes, turning off the ignition will require *increased physical effort to steer and brake the car* as the car slows down. Don't pump brakes and some power may be retained.

As the car slows down, guide it off the roadway, if possible.

After you stop the car, look for the source of trouble. The accelerator pedal may be binding on the floor mat or the rug in your car, and you can easily free the pedal by moving the rug or mat. If this isn't the case, and if you know something about engines, look in your engine compartment and check the accelerator linkage. Some of the parts may be stuck and binding, and a little oil (from the dip-stick used to check your oil) may solve the problem.

If you can't locate and remedy the problem (e.g., may be caused by a broken or missing accelerator return spring or by a broken motor mount), don't drive the car. Get help so the problem can be corrected.

If you think you've corrected the problem, make certain before driving the car. Apply the emergency (or parking brake) firmly, put the gear selector in park or neutral, and start the car. Exercise the accelerator pedal a few times to make sure it returns to its normal position after you remove your foot from the pedal. Then put the car in gear and try loading the engine a few times before releasing the parking brake and proceeding on your way.

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*Excerpted from *How To Deal With Motor Vehicle Emergencies*. U.S. Department of Transportation, National Highway Traffic Safety Administration, Office of Public Affairs and Consumer Services. February 1976.

Brake Failure

Newer cars have a split braking system designed to reduce the possibility of total brake failure (e.g., loss of brakes on all four wheels). They have a warning light on the instrument panel which lights up when your brakes are failing due to such problems as loss of pressure in the braking system. When the brake failure light comes "On," slow down, pull off the road, and don't proceed until you have the problem corrected or determine that you can drive safely to the nearest service facility. Because of the split braking system, the chances are that you will have some braking power left when the brake failure light comes on, but you may have to apply more force to the brake pedal and will need a greater distance to stop. If half of the braking system remains, proceed cautiously to the nearest service station or garage.

But, if you have a complete brake failure, what can you do to stop? There are several things you can try, but you must act rapidly.

- First, get off the highway onto the shoulder or other clear area, if possible.

- Try pumping your brakes rapidly to bring up your brake pressure.

- If pumping doesn't work, put the gear selector in a lower range (D1 or extra low in cars with automatic transmissions or shift to a lower gear in cars with manual transmissions) to give some braking power from the engine, and apply the emergency or parking brake with increased force. On vehicles with no manual parking or emergency brake release lever, use a modulated pressure on the pedal, as necessary, to prevent total locking of brakes.

- If none of the above work and you are in danger of crashing into someone or something, or of going down an embankment, there is one more thing you can try--but only as a last resort. Turn the engine off and move the gear selector to low. This may damage your transmission, but it may help you to stop in a real emergency.

If your brakes fail on a hill or mountain grade and the above remedies do not work, look for something to sideswipe--a snowbank, a guardrail, dirt mounds on the side of the road, or anything that will slow you down.

Loss of Steering

Loss of steering can occur suddenly and without warning. Something in the steering mechanism or its related components may break, fall off, or jam, leaving the driver with no control of the car's direction. (Partial loss in power-assist steering can occur if a drive belt breaks; steering control is not lost, but it requires additional effort.)

In such situations there is little you can do except to apply the brakes and come to a stop as quickly as possible. While applying the brakes, some warning to other motorists and pedestrians may be possible by turning on your emergency flashers and using your headlights, blowing your horn, and using hand signals.

When your car finally comes to a halt, try to move it off the roadway. Assistance from passing motorists or pedestrians may be sufficient to turn the wheels by hand enough to permit pushing the vehicle off the roadway. Before such action is attempted, position your emergency warning devices (flares or highway triangular warning signs) to alert other motorists using the road.

Leave the car in place until you get the steering repaired or until you get a wrecker to move the car to a repair facility. Lift the hood of the car and attach a white cloth to your radio antenna or door handle to indicate to other motorists or police that you need assistance.

Note: if you have had any previous warnings of steering problems, you should not find yourself in such a predicament. Steering problems are often preceded by such symptoms as extreme tightness in the steering, which indicates something is binding or obstructing the mechanism, or extreme looseness. If your car develops such symptoms, have the problem diagnosed and remedied at once.

Fires

Under the Hood or Under the Dash. Fires are generally caused by a fault in the electrical system or by leakage in the fuel system, which may cause raw gas to leak onto a hot engine. When such a fire develops, pull off the roadway just as soon as it is safe to do so, turn off the ignition, and get out of the vehicle in a safe manner and try to put out the fire. Every vehicle should have a fire extinguisher for emergencies. If you don't have an extinguisher, fires in the engine compartment can sometimes be put out by throwing dirt on them. You can also try smothering the fire by using a heavy cloth. Be careful when raising the hood to get at such a fire--use a rag to cover your hand when releasing the hood latch so that you don't get burned. Also turn your head aside as the hood is released to prevent facial burns from flashing flames.

If you don't have a fire extinguisher and there is a passenger in your car, have him flag down a passing motorist (especially a truck) who may have a fire extinguisher.

If the fire occurs while you're driving in a city or town, ask a passerby to summon the fire department.

Finally, don't attempt to drive the car until the cause of the blaze is determined and the problem corrected, including any damage caused by the fire itself.

Fires in the Rear of the Car. Fires in the rear of the car are potentially the most hazardous since most cars have their gas tanks in the rear. The biggest danger here is explosion of the gas tank.

If you notice smoke or flames coming from the rear of your car, immediately pull off the road to a safe spot. Get all passengers out of the car and remain at a great distance from it. Warn motorists and passersby of the danger, and have someone call the nearest fire department.

Lost of Power-assisted Braking and Steering

To those accustomed to power steering or power brakes, a malfunction in the system providing the power may lead the driver to think his brakes or steering have failed. If your car is equipped with these power features, and if you suddenly find that steering is more difficult, or the brakes will not respond when you touch the brake pedal, you can still steer and brake. It takes considerably more effort, but it can be done. Proceed with caution until your vehicle is repaired.

Loss of Lights

A total loss of lights in conjunction with total power loss is usually caused by the burnout of a fuse, a fused wire, or by loosened battery cables. (A flashlight in the glove compartment is essential to fix most electrical problems at night, so periodically check your flashlight to make sure it is functioning properly.) If your lights go out, pull off the road and take care of the problem before proceeding. Know where the fuse panel is in your car--check your owner's manual. Also carry spare fuses of the type used in your car's electrical system. Find your fuse panel and identify the fuse for your lights. (The panel should be marked to identify the fuse for the various systems.) Replace the blown fuse with a good one. If the new fuse doesn't solve the problem, or if the new fuse blows, your problem is more serious and requires repair by a competent automotive electrical systems repairman.

If you don't have a spare fuse, never wrap a piece of tinfoil around the old fuse. This defeats the prime purpose of the fuse and may result in en electrical system fire.

Loss of just one light (e.g., a tail light or one of the headlights) is less serious than a total loss of lights. This is probably the result of a bulb burnout, and you'll still have enough visibility to carefully drive to the nearest service facility to have the problem corrected.

If only the headlamps go out, the problem may be in a circuit breaker which has opened. These are heat-actuated to open and close, so they may come on and go off intermittently, giving you some light to help you to safety.

Overheated Engines

Engine overheating can be caused by a number of things--a leak in the radiator or hoses permitting loss of coolant, a faulty water pump, a bad thermostat, or a broken fan belt. There may be nothing seriously wrong. Some engines have a tendency to get hot when being overworked on hot days, e.g., moving slowly on a very hot day in a long line of stop-and-go traffic (particularly air conditioned vehicle).

Become familiar with the normal position of the needle on your temperature gauge when you car has reached normal operating temperatures. Knowing this, if you notice the needle moving abnormally close to the "hot" position it's time to do something. For cars equipped only with a light that indicates when the engine is hot, when this light comes on it's also time to do something.

If you notice steam or liquid being emitted from the front of your car, this is a definite indication that it is overheating.

If your car has a tendency to heat up when moving slowly in dense traffic in hot weather, there are several things you can do.

- If possible, pull off the road, turn off the engine, and let it cool off before proceeding.

- If you can't pull off the road and if the engine has not reached the critical overheat point (as noted by needle movement on the gauge), turn off your air conditioner (if you have it on). In stop-and-go, slow moving traffic, shift into neutral while stopped. Both these actions reduce the strain (load) on the engine and may bring the temperature down. During long waits in traffic, a slight increase in the engine's idling speed (press the accelerator lightly) can also help reduce overheating through the action of the fan on the coolant in the radiator.

- If none of the above work, turn on your heater (in addition to the other actions mentioned) and roll the windows down. This helps to reduce the engine's temperature, even in cars not equipped with air conditioners, by increasing the radiator capacity.

If the temperature rise is not normal for your car, pull off the road. Look for the source of trouble and let the engine cool. Don't remove the radiator cap. If the radiator cap is removed before the engine has cooled, the steam or liquid emissions, which will be forcibly released, can cause severe burns.

Remedial Action for Overheated Engines

- Remember--never pour cold water into an overheated engine or you may crack the engine block. This mistake is often made.

- After the engine has cooled, remove the radiator cap and check the coolant level. If you car is equipped with a "surge tank," check the coolant level at that point. The surge or radiator "overflow" tanks contain markings that indicate when coolant is low, normal, or hot; they are designed to take the overflow liquid from the radiator when the radiator gets hot, rather than have the coolant lost. When the radiator cools, the overflow should return to the radiator.

- Look for leaks or breaks in the radiator, surge tank, or in the hoses, including heater as well as radiator hoses.

- Correct the problem if possible. Friction tape or adhesive tape can sometimes be used to temporarily stop or slow a leak in a hose until you can get to a service facility to have it replaced. If the hose is split or ruptured near the end, sometimes you can remove the hose end (using a screwdriver or pair of pliers, depending on the type clamp used), cut off the damaged section (using a knife), and replace the hose.

Note: This often works for the smaller diameter hoses (3/4 or 1 inch that are flexible and a little longer than they have to be.

It may not be possible to do this with shorter hoses, or hoses of larger diameter that are preshaped during manufacture.

- If a source of water is available, replace the lost fluid.

- If possible to do so (engine temperature drops to normal range after taking remedial action indicated), drive to the nearest service facility nad have proper repairs done. Never drive a car with the engine overheated or with insufficient coolant. If there is no source of water available to replace lost coolant, if the car returns to an overheat condition, or a hose is ruptured too badly, arrange for roadside repairs to correct your problem.

Caution: If you are able to make temporary repairs so that you can drive to the nearest service facility, don't move the car until the engine has cooled down. When you get to the service facility, warn the attendant that the engine has been overheating so that he can take precautions to make sure he is not burned or scalded.

Loss of Oil Pressure

A sudden loss of oil pressure, if not promptly corrected, can result in extensive damage to your car's engine as well as a highway breakdown. Most cars have an oil pressure light on the instrument

panel. This light comes on as soon as you turn on the ignition. Shortly after the engine starts, the light should go out. If the light doesn't go out when the engine is running, or if it comes on while you're driving, you have trouble. You may not have enough oil in your engine, or your oil pump may be bad and not pumping oil through the engine.

If the oil light comes on and stays lit, the first thing to do after pulling off the road is turn off the ignition and check your oil. If the oil level is at or below the "add" mark on the dipstick, add oil before driving the car any farther. A spare can of oil carried in your truck is ideal for just such an emergency. If this was the problem, the oil light should go out when you restart the car.

Normally it is not advisable to operate the engine with the oil light on to protect the engine, but, if there are no abnormal engine noises and if your check shows you have enough oil and the light is still on, in an emergency you may drive cautiously a few miles to the nearest service facility but no farther. Get a good mechanic to check the car, because something else is wrong.

Alternator/Generator Failure

Most newer cars have an alternator. Older cars have a generator. Both serve the same purpose. They make the electric current that keeps your car's battery charged and operate the lights and anything else in the car that needs electricity.

If the alternator/generator light comes on and stays lit, something may be wrong with the electrical system in your car. First check the alternator/generator belt because if this belt is loose or broken, your car may also be about to overheat. Have a service facility correct the problem as soon as you can.

If this happens out on the highway, you can often run the car using the electrical current from your battery alone. But you can do this only for a short distance until the battery power is exhausted. If you must run your car for a short distance to get to a service facility, turn off all electrical accessories (air conditioner, radio, or heater) except the ignition.

If this happens at night, the extra drain on the battery will shorten the distance you can drive, but you should be able to drive several miles to a service facility.

Windshield Wiper Failure

Windshield wipers may fail when you need them most--when it's raining or snowing. To lower the odds of your wipers failing, periodically check them or have a service facility do it for you. Make sure you have good blades and that they are properly adjusted to conform to your windshield.

If you have the disappearing-type wipers, periodically check the opening at the front of your windshield. Do this more frequently in the fall and winter. Remove leaves, twigs, snow or ice from the wiper recesses and from around the wiper motor shaft and wiper arms. Such obstructions can place a strain on your wiper motor and result in wiper failure.

If you have a failure on the highway (loose wiper, motor ceases to turn wipers, blade flies off), get off the highway and see if you can correct the problem. Again, some obstruction may be hampering wiper movement, or it may be possible to push the wiper arm onto the spindle more firmly. Before you pull off the road, make certain it is safe to do so.

Open the window and stick your head out to see, if necessary.

If you find that you can't fix the wipers yourself, wait until the rain or snowstorm has let up, then proceed with caution to the nearest service facility. If it's impractical to wait, you'll have to get help.

MINI-UNIT 7

PROMOTING TRANSPORTATION SAFETY THROUGH CONSUMER/CITIZEN ACTION

Your students, like everyone else, are consumers of transportation services. As consumers, they should learn to take all the actions any consumer can take when he or she wants to improve the goods or services he or she buys. Those actions range from refusing to buy the service to complaining, to making suggestions for improvements, to getting the management changed.

Since some transportation services are provided by government agencies, and since much of transportation is regulated by government, the transportation consumer should learn how to participate in certain appropriate governmental decision-making procedures: to attend hearings, file statements, deal with the governmental agencies that make decisions about transportation services.

In this unit, we try to show your students some effective ways of trying to influence those who run the transportation services in your community. Consumer and citizen action is definitely wanted, but it must be backed up by knowledge, by facts, and by understanding of proper procedures.

Among the concepts treated are

- Citizens can influence governmental agencies that write regulations affecting transportation safety.
- Citizens can take legal action to promote safety if appropriate and necessary.
- There are usually more worthy programs than can be funded.

Activities #41 and #42 in Mini-unit 11 can be used to enrich this unit. Activity #41 includes several pages of testimony by transportation consumers that was given at hearings just like the ones discussed in Activities #25 and #26. Activity #42 contains actual hints about how to prepare for public hearings.

MINI-UNIT 7 LESSON PLAN

Promoting transportation safety through consumer/citizen action

Activity #	*Activities*	*Class Time*
25	DESCRIPTION: Class discusses the merits of different types of personal, social, and political actions citizens and citizen groups can take to promote automobile safety. GOAL: To know the different kinds of actions that are available to individual citizens who are concerned about transportation safety.	1½-2 periods
26	DESCRIPTION: Students role play funding agencies discussing priorities for financing different types of community safety programs. GOAL: To understand the competing considerations that must be evaluated before a program can be funded.	½-2 periods
27 Spirit Master #7	DESCRIPTION: Students identify pedestrian hazards and formulate appropriate community countermeasures to enhance pedestrian safety. GOAL: To know what pedestrian hazards are and how to cope with them.	1½-2 periods

Total Class Time: 3½-6 periods.

ACTIVITY #25

Mini-unit Topic: Promoting Transportation Safety Through Consumer Action

Approximate Class Time: 1½-2 periods

Capsule Activity Description: Class discusses the merits of different types of personal, social, and political actions citizens and citizen groups can take to promote automobile safety.

Goal:

To know the different kinds of actions that are available to individual citizens who are concerned about transportation safety.

Concepts Treated:

- Citizens can influence governmental agencies that write regulations affecting transportation safety.
- Citizens can participate in tranportation planning.
- Citizens can write to a variety of agencies charged with promoting and enforcing safety standards and rules.
- Citizens can speak out about safety.
- Citizens can make written statements about safety.
- Citizens can take legal action to promote safety if it is appropriate and necessary.
- Citizens can take peaceful direct action to impress authorities with their concern about safety.

ACTIVITY

The teacher begins this activity by discussing the three elements involved in traffic safety: man, machine, and environment. "Man" includes all the human factors involved in driving safety, such as concentration, skill, and attitudes. "Machine" refers to the car--the safety features it provides. "Environment" takes in all the surrounding natural and man-made things which impinge on both the automobile and the driver, such as roads, obstacles to clear vision, billboards, and weather conditions. Even though two of these three

traffic safety elements promote driving safety, the third can easily by itself make driving dangerous. For example, a careful driver using a perfectly conditioned car may still crash when driving on ice. A careful driver, in excellent weather, is still in danger if his car has brakes which are about to fail. And, of course, a beautiful, clear day and a finely tuned car do little to ensure traffic safety with a drunk driver. Thus the consumer's focus should be on all three safety elements if he is to travel as safely as possible in a car.

However, for a given safety problem, the citizen must select *which* of these three factors he can most easily and effectively change and concentrate his attentions on. For example, citizens can do a great deal about controlling their own safety habits as drivers and passengers. They can have some effect on changing the environment to conform to safety needs by participating in transportation planning activities and hearings and making their influence felt on those government and private agencies which are responsible for environmental conditions.

Citizens can also promote the safety of the automobiles they drive by maintaining them in safe operating condition. They can also have some impact on the safety features automobile manufacturers design into their automobiles and safety options they make available. Here consumers can exert both economic pressure (not purchasing unsafe cars) and political pressure (writing congressmen urging the passage of appropriate safety legislation).

Following this introductory discussion, the class can then, in small groups or as a whole, consider the merits and drawbacks of the following potential types of citizen action.

One can write letters or engage in petition campaigns directed at regulatory agencies (Federal, state, local), such as National Highway Traffic Safety Administration (NHTSA), Federal Aviation Administration (FAA), Civil Aeronautics Board (CAB); at politicians, such as Congressmen, Senators, executives (President, mayor, governor, or town manager); at local transportation agencies, such as mass transit authorities, port authorities, departments of public works, department of highways; at state departments of transportation; at local consumer protection agencies; at media (TV, radio, newspaper) "Action Lines"; and at the editor of the local newspaper. Such campaigns may be designed to achieve strong or stronger legislation on such issues as speed limits for cars, snowmobile use, auto traffic in the inner city, incentives for use of carpools, use of highway construction, billboards, manufacfinancing mass transit, new highway construction, billboards, manufacture or purchase of large cars, speed minimums for autos, and free or inexpensive public transportation.

One can create publicity to educate the public on the issues suggested above by means of advertisements, editorials, and feature articles in local newspapers, monthly city magazines, newsletters of community groups and unions; lectures; fact sheets and leaflets; demonstration projects; and radio and television public service announcements.

Giving talks to clubs and organizations--fraternal societies (Elks, Masons, etc.), youth groups (Boy/Girl Scouts, etc.), civic groups (Kiwanis, Rotary) and *organizing meetings* with public and private officials, government agencies, and private companies to encourage them to adopt specific actions or discontinue current practices in order to increase traveller's safety can also be effective.

Participating in transportation planning through such actions as becoming involved in the planning of Federal-aid highway projects. The Federal Highway Administration (FHWA) works with state highway agencies to ensure that community organizations and individual citizens are actively encouraged to participate in the planning and design of Federal-aid highway projects.*

Under the Federal-aid program, state highway agencies initiate, plan, design, build, and operate highway projects. (The FHWA provides financial assistance and guidance and is responsible for certain key approvals.) Each state highway agency has formulated a community involvement program--part of the state's action plan--which explains the procedures that are followed.

In addition to community involvement programs, each action plan explains how social, economic, and environmental factors are identified and studied, how the assistance of a wide range of professional skills is obtained and utilized, and how consideration of all feasible alternatives is assured in the highway planning process. Copies of action plans are available from state highway agencies or can be examined in their offices.

Action plan programs for community involvement include opportunities for interested citizens to participate in the planning and design process. In addition to public hearings, most states place emphasis on public meetings. Frequently such meetings are conducted as workshops, run with the assistance of local officials and agencies. In many instances coordination meetings are held with local officials prior to the public meetings.

Under state action plans, mailing lists are maintained to provide early notification and continued information to known interest groups and individuals. Concerned citizens may contact their state highway agencies and ask to have their names placed on these mailing lists.

Evaluation:

Students write a brief fictional story about how a citizen or citizen group attempted to take action to promote driving safety and what happened.

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*For further information write for copies of *Getting Involved in Transportation* (U.S. Department of Transportation, Office of Consumer Affairs, 400 7th and D Streets, S.W., Washington, D.C. 20590).

ACTIVITY #26

Mini-unit Topic: Promoting Transportation Safety Through Consumer Action

Approximate Class Time: ½-2 periods

Capsule Activity Description: Students role play funding agencies discussing priorities for financing different types of community safety programs.

Goal:

To understand the competing considerations that must be evaluated before a program can be funded.

Concepts Treated:

- There are usually more worthy programs than can be funded.
- Sometimes programs are funded (or not funded) for reasons that are not made explicit.
- Among the competing considerations are availability of money, assignment of credit for the program, the portion of the community that will benefit from the program, who will be hurt by the program.
- In addition to financial benefits and costs, the personal and social benefits of a program must be evaluated.

ACTIVITY

Prior to engaging in this activity, students discuss the concept of cost-benefit analysis. Cost-benefit analysis involves answering the questions: "how much will it cost to achieve a specific benefit" and "are the benefits worth the cost?"

Students should examine not only the financial, but also the social and personal costs and benefits of a program. For example, what would it cost to design and manufacture a car that was crash-proof? Who would pay the costs? What would the benefits be from such a development: how many lives would be saved, how many injuries avoided, how much money saved in medical, insurance, and repair expenses? Before promoting a safety measure, citizens need to consider the cost-benefits of the measure they are advocating to determine whether their goal is worth seeking.

Students then volunteer to play officials of a funding body which has been given a specific amount of money and must select among two or more community safety programs which one to fund. A sample role profile is provided below at the end of this activity.

Evaluation:

Students identify two needed safety programs in their own community and orally or in writing indicate which one should be funded and why.

Variations and Supplementary Activities:

Students can write their responses to the situations described in the role profile instead of role playing them.

The selection of available programs which students fund can be restricted to those relating to only one transportation safety area, such as automobile driving, boating safety, or emergency vehicles.

Sample Role Profile

(Distribute copies of role profile to three or more students.)

You are in a meeting with two other politicians. The three of you are part of the Transportation Safety Committee of the State Senate which is responsible for making recommendations to the Senate about transportation safety issues. You have to decide how to spend the 40,000 dollars you have left over at the end of the year's budget, because the money cannot be saved and cannot be spent on anything but transportation safety. You know your community badly needs three improvements in the area of safety. The amount of money you have available, however, can fund only one program. The meeting has just begun. What do you say the money should be spent on?

(Teacher or students select three of the following choices or develop ones of their own.)

1. Department of Motor Vehicles program to make sure secondhand car dealers are not selling cars which are safety hazards

2. A public education program on safety considerations people should keep in mind when purchasing a new or secondhand car

3. A public education program informing citizens about how to maintain and service their cars to ensure driving safety

4. Stricter police enforcement of the speeding, reckless driving, and other automobile safety laws, including paying officers overtime for this purpose

5. A public education campaign to encourage drivers to drive safely

6. A state law or local ordinance requiring people to wear seat belts and paying police overtime to enforce the law

7. A public education campaign on the importance of wearing seat belts

8. A watchdog commission, with testing facilities, to evaluate the safety of new model cars and report its findings to the public

9. Overtime pay for Department of Motor Vehicles staff to retest all automobile driver license holders every five years

10. Institution of a state automobile inspection system

11. Revision of the oral or written driver license test and/or the road test to include additional questions and exercises related to driving safety

12. Replacement of traffic signs and traffic barriers (fences, highway dividers, etc.) with breakaway materials

13. Construction of pedestrian facilities (underpasses, sidewalks, railings, etc.)

14. Removal of dangerous curve in a local road or highway, construction of an underpass at the hazardous intersection of two local streets, etc.

15. Purchase and staffing of a patrol boat to enforce boating safety on Lake Capsize and provision of emergency service

16. Institution of a boating safety inspection program

17. Purchase of two (three, one, etc.) police ambulances (a new fire engine, an emergency helicopter, etc.)

18. Establishment of a first aid training program for ambulance drivers and attendants

19. Development of public education campaign on the availability of emergency transportation services and how to use them

ACTIVITY #27*

Mini-unit Topic: Promoting Transportation Safety Through Consumer Action

Approximate Class Time: 1½-2 periods plus out-of-class time

Capsule Activity Description: Students identify pedestrian hazards and formulate appropriate community countermeasures to enhance pedestrian safety.*

Goal:

To know what pedestrian hazards are and how to cope with them.

Concepts Treated:

- Being a pedestrian includes coping with hazards.
- Some hazards are peculiar to intersections, some to mid-block locations.
- Some pedestrian hazards are related to other activities, such as making purchases from a street vendor.
- Some age groups present a higher pedestrian risk than others.

ACTIVITY

Write this statement on the chalkboard:

In 1973, approximately 400,000 pedestrians were involved in accidents with motor vehicles. About 10,000 of the accidents resulted in pedestrian fatalities, with 64 percent of these fatalities occurring in urban areas.

As a class discuss some or all of the following issues

- Do you ever think of yourself as a pedestrian? What responsibilities do you have as a pedestrian?
- Do you ever worry about your safety as a pedestrian? Why or why not?
- Does a pedestrian have any kind of protection from harm? What protects a pedestrian best?

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*This activity appears also in Mini-unit 1.

Brainstorm for dangerous pedestrian practices that students or others engage in. List them on the chalkboard. Some practices that might be mentioned follow.

- Darting into street without looking
- Not crossing at crosswalk or intersection
- Standing in street rather than on sidewalk while waiting to cross street
- Not paying attention while walking (e.g., talking to friend, reading newspaper)
- Walking at night wearing dark clothing
- Running rather than walking across street
- Getting caught in middle of street when traffic starts up
- Being upset, drunk, on drugs while walking

Using the material attached, relate those practices mentioned by the students to the eight most frequently occurring pedestrian accidents.

To find a solution or solutions for improving pedestrian safety, students first observe pedestrian habits and practices at various points in the community. Break the class into pairs and pass out Table 1 which outlines the characteristics of each accident type. Using this table and the list on the chalkboard as guides, students make up an observation sheet or adapt the one provided as Spirit Master #7.

Working together, students choose a location from which to observe pedestrian movement at different times over a period of a few days. When the information has been gathered, students determine what precautions pedestrains should be taught or alerted to, to ensure their safety, and what the community can do to further the public's safety while walking.

Students present their findings and conclusions to the class in a form similar to that in the second table. They are then compared to the pedestrian countermeasures and expected outcomes of the table. The counter measures are then assessed as to the best ones for the local community.

Evaluation:

Students make up a pedestrian safety brochure for their community.

Variations and Additional Activities

Students pick a particular age group or population to observe and report on.

Students can focus on the dangers of playing in railway yards and around railroad crossings.

Students research the existence of anti-jaywalking laws and whether they are enforced.

Pedestrian Hazards*

Eight frequently reported types of accidents account for over 55 percent of the pedestrian accidents studied. A brief description of the eight types of pedestrian accidents follows:

1. *Dart-out (First Half).* A pedestrian, not in an intersection crosswalk, appears suddenly from the roadside. His quick appearance and short-time exposure to the driver are the critical factors. The pedestrian often may be running, and parked cars often obstruct vision, but neither need be present if the basic condition of sudden appearance to the driver's view is met. The prime example of the dart-out is a school-age child running out from between parked cars on his own block, in a residential area in the center city in the afternoon after school. He heads straight across the relatively narrow street, looking where he is going and is struck less than half-way across. The driver, traveling at a normal rate of speed, did not have enough time to stop after detecting the child.

2. *Dart-out (Second Half).* This is the same as the dart-out described for the first half above, except that the pedestrian covers half of a normal crossing before being struck. The distinction was made because of the possible differences in the opportunities or problems relative to driver detection and recognition of danger if the roadway is clear. However, this type was assigned even if traffic obscured the driver's vision. It may be used even if the pedestrian crosses a medium-sized median strip of a boulevard.

3. *Intersection Dash.* This category covers cases similar to dart-outs with regard to pedestrian exposure to view, but the incident occurs in or near a marked or unmarked crosswalk at an intersection. Cases are included if the pedestrian is running across the intersection even though his exposure to possible driver view is not extremely short. (His speed will, in effect, limit his actual exposure to the driver.)

**Urban Pedestrian Accident Countermeasures Experimental Evaluation*, Vol. 1. Behavioral Evaluation Studies. Wallace G. Berge. Prepared for National Highway Traffic Safety Administration and Federal Highway Administration, U.S. Department of Transportation, Washington, D.C., February 1975, page 1-1.

4. *Vehicle Turn/Merge with Attention Conflict.* The driver is turning into or merging with traffic; the situation is such that he attends to auto traffic in one direction and hits the pedestrian who is in a different direction from his attention. A critical feature is that the attention conflict is built into the situation. Usually the driver directs his attention in a given direction to determine an acceptable gap into which he will enter.

5. *Pedestrian Strikes Vehicle.* This classification covers crashes not covered by other clear types (E.G., dart-out) in which it has been determined that the pedestrian ran or walked into the car.

6. *Multiple Threat.* The pedestrian is struck by car x after other cars blocking the vision of car x stopped in other lanes going the same direction, and avoided hitting the pedestrian. For example, cars in lanes one and two stop and permit the pedestrian to cross; car x in lane three going the same direction hits the pedestrian as he steps out in front of the car in lane two. This classification is not used if the striking vehicle is going in the opposite direction from the stopping cars. (In that situation, the stopping cars would not block the driver's vision.)

7. *Bus Stop Related.* This type includes cases in which the location or design of the stop appears to be a major factor in the causation; e.g., the pedestrian crosses in front of the bus standing at a stop on the corner, and the bus blocks the view of cars. It does not include those cases that may be considered as existing from a vehicle, nor does it include cases in which the stop is only an attraction or distraction.

8. *Vendor--Ice Cream Truck.* The pedestrian is struck going to or from a vendor in a vehicle on the street. This is usually similar to a dart-out, with ice cream trucks being the most frequent attraction. This specific classification was given precedence over dart-out when assigning cases to types.

The following table further defines these accident types in terms of some of their locational (e.g., block location, environmental settings) and behavioral (e.g., running into roadway, between parked cars) characteristics.

Table 1

PEDESTRIAN ACCIDENT DESCRIPTION[1]

Accident Type	Characteristics						
	% of Ped. Accidents	% That Are Fatal	Time of Day	Ped. Age	Block Location	Area	Accident-Related Behavior
1. Dart-out First Half	24.1	8.3	Day (70.5)[2]	5-9 (52.5)	Nonintersection (90.7)	Residential (63.4)	Running into the roadway Failure to look for traffic Entry between parked vehicles
2. Dart-out Second Half	8.8	10.4	Day (71.7)	5-9 (49.7)	Nonintersection (74.1)	Commercial (35.4)	Running into second half of roadway Midblock crossing Entering between parked vehicles
3. Intersection Dash	8.4	6.7	Day (76.8)	5-9 (39.0)	Intersection (96.9)	Commercial (48.5)	Failure to look for traffic Crossing against the light Running into the roadway
4. Vehicle Turn/Merge with Attention Conflict	6.4	8.8	Day (70.9)	All	Intersection (85.5)	Commercial (73.7)	Vehicle turning in proximity of pedestrians Failure to look for traffic Failure to detect pedestrian
5. Pedestrian Strikes Vehicle	4.0	2.3	Day (81.6)	5-9 (34.2)	Intersection (57.6)	Commercial (40.7)	Running into the roadway Failure to look for traffic Entry between parked vehicles
6. Multiple Threat Situation	3.2	5.8	Day (83.6)	10-14 (20.9)	Intersection (70.7)	Commercial (65.2)	Entry from in front of standing vehicle Small separation between stopped vehicle & pedestrian Running in roadway Failure to detect pedestrian
7. Bus Stop Related	2.6	17.9	Day (80.4)	10-14 (17.0)	Intersection (81.1)	Commercial (61.8)	Entry from in front of stopped bus Failure to detect pedestrian
8. Vendor-Ice Cream Truck	1.5	12.4	Day (87.0)	5-9 (69.0)	Nonintersection (31.8)	Residential (78.3)	Running into the roadway Failure to look for traffic Excessive vehicle speed Failure of driver to detect potential threat

[1] Data based on Snyder and Knoblauch (1970).

[2] Percent so classified.

Table 2

SUMMARY OF COUNTERMEASURES FOR PEDESTRIAN SAFETY

Countermeasure	*Utility*	*Expected/Actual Results*
Segregation of traffic by type; isolation of pedestrian from traffic	Roadway differentiation by type of traffic; separation of pedestrian movement and vehicles; separation of pedestrians by footpaths, underpasses, escalator-type overpasses	Substantial savings in accidents, injuries, property damage and lives; reduction in cost of time loss imposed on vehicular traffic by pedestrians
Provision for reduced speed limits in school areas and adult crossing guards	Installation of warning signs, flashing lights, reduction of speed limit in school area	Increased protection of school-age pedestrians in school zones
Use of reflective and retro-reflective materials for greater pedestrian visibility	Brighter reflective characteristic than white material; ease in application to clothing, and removal when not required	Increased visibility of pedestrians after dark, with commensurate reduction of casualties
Public education on pedestrian rights and responsibilities	Develop responsible reactions to traffic danger	Formulation of pedestrian safety programs for children and adults
Identification of drinking pedestrians and the removal of unqualified or medically impaired drivers	Control of accidents involving problem drinkers and removal of certain drivers from the road	Minimize accidents resulting from alcohol and human failure
Creation of safe play areas in high-accident, high-density areas	Provision of adequate, safe play areas away from traffic	Reduction of accidents to children
Crosswalk illumination and use of abrasive at crossing site	Illumination providing no glare in the motorist's field of vision and faster stopping capability than smooth surfaces	Reduction in vehicle-pedestrian accident rate
Redesign of streets, creation of pedestrian preserves and paths, prohibition of vehicular traffic from certain streets during specific daylight hours.	Accommodates movement of growing populations while prescribing transport and safety features	Improvement in public transport; increased safety for pedestrians
Prohibition of on-street parking; parking restrictions; barriers; and improvement of traffic signal cycles	Field of view of driver and pedestrian greatly improved; removal of physical obstructions; prevention of pedestrian passage between parked vehicles; and enabling pedestrians to cross intersections with greater safety	Increased safety for pedestrians

From *A New Look at Pedestrian Safety*. U.S. Department of Transportation, National Highway Traffic Safety Administration, November, 1975.

MINI-UNIT 8

LEARNING HOW TO BE SAFE WHILE BOATING

Water-based recreation is becoming more and more widespread. In today's affluent society, many families own boats and use them frequently during good weather. It becomes very important, therefore, for all members of the family to be aware of what the basic rules of boating safety are. To know how to swim is important, but it is not enough. You cannot extract yourself by swimming from most boating accidents. In fact, trying to swim to safety is often the very worst thing to do after an accident has happened.

Boating safety is all the more important because there are as yet no licensing regulations that require a minimum age and a minimum skill before a person can drive or sail a boat. Each person's safety in a boat is still a matter of his or her own knowledge, skill, and prudence.

Major concepts treated in this unit are

- The Coast Guard has regulations about safety equipment a boat must carry.
- Alcohol doesn't mix with driving either a car or a boat.
- Fueling a boat is more dangerous than fueling a car.

Research Activity #43 (in Mini-unit 11) can be used in conjunction with this unit. In Activity #43, students examine official Coast Guard statistics on boating accidents and interpret them.

MINI-UNIT 8 LESSON PLAN

Learning how to be safe while boating

Activity #	*Activities*	*Class Time*
28 Spirit Master #8	DESCRIPTION: Class discusses boating safety. GOAL: To become acquainted with the legally required safety equipment a boat must carry and the basic safety procedures that a boat should follow.	1 period
29 Spirit Master #9 & #10	DESCRIPTION: Students read the beginning of a story about peer pressure and boating safety. Students supply the ending themselves. GOAL: To become aware of peer pressure and its likely effect on safety.	1 period
30	DESCRIPTION: Students and teacher discuss why fueling a motorboat is hazardous and what steps need to be taken to make it a safe procedure. GOAL: To know how to fuel a boat safely.	1 period

Total Class Time: 3 Period.

ACTIVITY #28

Mini-unit Topic: Learning to be Safe While Boating

Approximate Class Time: 1 period

Capsule Activity Description: Class discusses boating safety.

Goal:

To become acquainted with the legally required safety equipment a boat must carry and the basic safety procedures that a boat should follow.

Concepts Treated:

- The Coast Guard has regulations about safety equipment a boat must carry, including personal floatation devices (PFDs), running lights, whistles and horns, and fire extinguishers.
- There are rules to follow while driving a boat.
- There are basic navigational rules to follow.
- A boat operator is legally liable for any damage his boat inflicts.

ACTIVITY

Students discuss boating safety. Use the attached material to enrich the discussion. Spirit Master #8 shows the minimum required equipment; you will probably want to distribute this material.

You might begin the discussion by having the students examine the following facts:

> In 1974, 1,446 persons lost their lives in boating accidents. The cause of death in 1,314 of these accidents was drowning. Capsizing is the major type of casualty, accounting for 602 of the total deaths; 684 of the fatalities occurred in accidents where there was some fault of the operator in handling the vessel.
>
> The National Safety Council says that on the spot checks generally indicate that 40 percent to 50 percent of an average group engaged in boating recreation cannot

swim or cannot swim well enough to save themselves or others in an emergency.

The Coast Guard estimates that in 1974 there were about 8.55 million boats in use, suggesting that probably over 40 million persons are engaged in boating activities of some kind.

Students can select one or more of the following "Ten Commandments of Boating" listed by the National Safety Council and discuss in detail what they involve.

Ten Commandments of Boating

1. Know your boat.
2. Don't overload.
3. Keep a good lookout.
4. Operate at safe speeds.
5. Respect the weather.
6. Take sufficient fuel.
7. Keep your boat in shape.
8. Carry necessary equipment.
9. Secure your boat properly.
10. Obey the law.

Evaluation:

Students develop a set of "Commandments" for passengers in a boat.

Students role play what they, as passengers would do, if a person fell overboard. Classroom equipment can be used to stand for the boat, for PFDs, etc.

Variation and Supplementary Activity:

Invite a speaker from the Coast Guard or the Coast Guard Auxiliary to present this material as a lecture.

Dos and Dont's of Safe Boating*

Coast Guard Requirements/Minimum Required Equipment

Equipment	*Class A (Less than 16 feet)*	*Class 1 (16 feet to less than 26 feet)*	*Class 2 (26 feet to less than 40 feet*	*Class 3 (40 feet to not more than 64 feet)*
Back-fire Flame Arrestor	One approved device on each carburetor of all gasoline engines installed after April 25, 1940, except outboard motors.			
Ventilation	At least two ventilator ducts fitted with cowls or their equivalent for the purpose of properly and efficiently ventilating the bilges of every engine and fuel-tank compartment of boats constructed or decked over after April 25, 1940, using gasoline as fuel or other fuels having a flash-point of 110° or less.			
Personal Flotation Devices (PFD)	One approved Type I, II, III or IV device, for each person on board or being towed on water skiis, etc.	One approved Type I, II or III device aboard for each person and, in addition, one throwable Type IV device.		
Bell, Whistle	None	Whistle--one hand, mouth, or power operated, audible at least ½ mile.	Bell--one, which when struck, produces a clear, bell-like tone of full round characteristics One hand or power operated, audible at least 1 mile.	One power operated, audible at least 1 mile.
Fire Extinguisher Portable *When NO fixed fire extinguishing system is installed in machinery space(s).*	At least one B-1 type approved hand portable fire extinguisher. (NOT required on outboard motorboat less than 26 feet in length and not carrying passengers for hire if the construction of such motorboats will not permit the entrapment of explosive or flammable gases or vapors.		At least two B-1 type approved portable fire extinguishers; OR at least one B-11 type approved portable fire extinguisher.	At least three B-1 type approved portable fire extinguishers; OR at least one B-1 type plus one B-11 type approved portable fire extinguisher.
When fixed fire-extinguishing system is installed in machinery space(s).	None	None	At least one B-1 type approved portable fire extinguisher.	At least two B-1 type approved portable fire extinguishers; OR at least one B-11 type approved portable fire extinguisher.
	B-1 Type Approved Hand Portable Fire Extinguishers contain: Foam, 1½ up to 2½ gallons; or Carbon Dioxide, 4 up to 15 pounds; or Dry Chemical, 2 to 10 pounds; or Freon 2½ lbs.		B-11 Type Approved Portable Fire Extinguishers contain: Foam, 2½ gallons; or Carbon Dioxide, 15 pounds; or Dry Chemical, 10 pounds.	

*The information on this and the following pages is adapted from *The Skipper's Course*, developed by U.S. Department of Transportation, United States Coast Guard, Office of Boating Safety.

Rules of Operation

On-the-Spot Corrections

Under the Boating Safety Act of 1971 the Coast Guard can now do something that they couldn't do before--that is, when in their judgment, they observe a boat operating with an unsafe condition (say, grossly overloaded) and they determine the unsafe condition is especially hazardous, they can take action. That is they can terminate that boat's trip by directing the boat to the *nearest* dock (or safe area) and have it stay there until the condition is corrected.

Negligent or Grossly Negligent Operation

If a Coast Guard Boarding Officer observes a boat being operated in a negligent or grossly negligent manner (for example, pulling a water skier through a busy swimming area) this could result in a fine or jail! The difference between negligent and grossly negligent operation is a matter of knowledge or ignorance. Speeding in a zone clearly marked "5 MPH MAKE NO WAKE" could be viewed as grossly negligent and could result in either a fine or jail or both. You are responsible for learning and observing all rules and regulations regarding the operation of your boat. The following subjects are primarily concerned with the operation of your boat--so study them carefully.

Accident Reporting

If you learn and practice all of the safety points in this program there's a good chance you may never have to fill out and send in an accident report. However, some other boat *could* run into you. In this case you might have to fill out an accident report. This is required by law. There are three conditions that require you to fill out and send in a boating accident report. These are (1) when a life is lost due to the accident; (2) when someone is injured and incapacitated (laid up) for 24 hours or more; and (3) damage of more than $100 to property (including boats).

If these seem general to you, remember it's best to file a report if you have any doubt. If anyone died you must file a report immediately. If the report covers injury or damage you must file it within five days. Some states may require reports for less serious accidents, so be sure to check out the laws in your state.

If you ever have to file an accident report you must, if the Coast Guard issued your boat numbers, send it to the Coast Guard Officer in Charge of the nearest Marine Inspection Office. Otherwise, you file the report with the state that issued your boat numbers. A special form "Boating Accident Report" form number CG-3865 is available at all Coast Guard Stations and Marine Inspection Offices.

Rules of the Road

There is much similarity between the marine "Rules of the Road" and the rules we use in driving a car. And just like automobile rules, they exist to help everyone avoid collisions and accidents.

In discussing rules of the road, we're going to use two special terms: "Privileged" and "Burdened" boats. The privileged boat is the one with the *right of way*. The burdened vessel is the one with the *"burden of responsibility"* for taking whatever action is best to avoid a collision.

On shore, in an automobile, when we wish to pass or turn, we provide either a hand signal, signal with a directional light, or give a toot on the horn. The purpose is to make certain the other drivers know what you are going to do--so that they won't take some other action that might cause an accident. We do the same things on the water, but use either a whistle or horn.

The length of the blasts or toots is part of the signalling code. A Prolonged Blast is one of 4 to 6 seconds long.

A Long Blast is 8 to 10 seconds.

A Short Blast is of about one-second duration.

We all know it does no good to have 20 car horns blowing in a traffic jam. So too, with the rules afloat. Use your whistle signals *only* when the situation requires them.

Further, when there is clearly no danger of collision, no signals are required--anymore than on shore with a car.

Again, rules of the road are just common sense. Action should be taken when it is *clear* that a potentially dangerous situation exists. The action should be CLEAR and DECISIVE and be taken early enough to be noticed and understood by the other boat.

Again, common sense--large vessels can't stop quickly, change course or generally maneuver as well as a small boat. Also, large vessels in harbors and rivers must stay with the channels. They have the right of way and the burden to avoid collisions is on the skipper of the smaller boat.

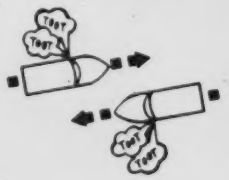
The danger signal where Inland Rules apply is four short blasts or toots. When you hear it, you must slow down and maneuver as necessary or stop until the danger condition--or confusion--has been resolved.

Sailboats, under sail, lack the means of control that may be required for decisive and timely action. Therefore, they have the right of way over a powered boat (but not over large vessels in confined or narrow channels).

There are three types of situations between two approaching vessels that require whistle signals to be given. These are: meeting, crossing, and overtaking.

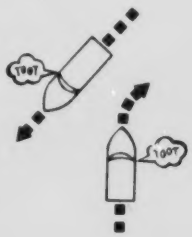
Meeting head-on or nearly so: just as in driving a car, you stay more to your right. One boat gives a single short blast; the other responds with the same signal. Now each skipper knows what the other is going to do--and they've confirmed it.

What about meeting but passing well clear of each other--the only time boats may pass each other to the right (starboard-to-starboard)? Again, just common sense--to suddenly change course in order to pass the other boat's left side would create a dangerous situation. Don't count on the other Skipper to know that: instead, give him two short blasts. He'll answer with two, and you'll both be relieved that you communicate so well.



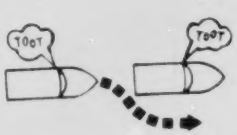
If, at any time, there is confusion about signals or intent, four short blasts is the danger signal--each boat must come to a stop until the situation is clarified. This occurs when one boat gives a proper passing signal, and the other confirms it. In this situation boat A is backing away from a dock and may not see boat B who then sounds the danger signal.

A crossing situation is similar to meeting another car at an intersection that has no stop signs. As ashore, the vehicle to the right is privileged--in fact, he *must* continue his course and speed. Inland Rules do not require signals in this situation, but again, common sense should prevail. The boat on the right (privileged) should signal his intent to maintain his course and speed by one short horn blast. The burdened vessel should reply with a short blast signalling his intent to slow down and/or change course to pass astern of the other boat.



Finally, there are the overtaking situations. Normally, you'd pass the privileged vessel on his left, as you would in a car, and signal this intent with two short blasts. If it is safe to pass, the privileged vessel will respond with two short blasts. Then the privileged boat passes, keeping well clear of the burdened boat.

If it is more reasonable to pass on the privileged boat's right, signal your intent with one short blast. A one short blast reply gives the go ahead.



Should the privileged vessel consider it unsafe for you to pass as you proposed, it must reply with four short blasts (the danger signal). The burdened vessel must then remain in position and make no further attempt to pass until the privileged vessel answers a one or two short blast signal with one or two short blasts respectively, or proposes a new signal.

When a boat is ready to leave a dock, slip, or mooring--normally the boat is backed out into the regular traffic channel. Few boats maneuver well when going astern and you will be entering an area where there may be several other boats underway. The rules of the road require that you sound one long blast on the horn or whistle (eight to ten seconds) as soon as you clear the dock or slip. This signal must also be sounded when approaching a blind bend in a river or channel. This signal would warn any boat approaching the bend from the other direction. Once in sight of each other, normal rules of the roal and maneuvering signals apply.

Navigation Lights

Federal law requires that ALL boats display certain lights at night. These lights will tell others of your presence, what kind of a boat you are: that is, sailboat, motorboat, and even a rowboat. These lights on another boat will tell you whether you're meeting, crossing, or overtaking another boat.

Only three (3) colors are used: red, green, and white. A red light is displayed on the bow's *left* or port side. An easy way to remember is "*Port* wine is *Red*." A green light is displayed on the bow and indicates the right or *starboard* side. White lights are usually displayed on the back (stern) of boats but may be found on other parts of the boat, especially on larger vessels.

In addition to the colors used and the position of the lights on a boat, lights are "shaded" so that they cannot be seen from certain directions. The amount of light that can be seen from a shaded light is measured in "Points." A point is equal to eleven and one quarter degrees (11¼°) of a circle. For example an unshaded light that can be seen from *any* direction would be called a 32 point light because:

$$32 \times 11.25° = 360°$$

A 10 point light can be seen through an arc of 112½ degrees.

Exactly how many white lights should be displayed and where depends on the class (size) of the boat. Check the requirements before you go out at night.

Aids to Navigation

Introduction

Aids to navigation take the place on the water of street signs and road maps used on land. Aids to navigation are placed at various points along the coasts, rivers, lakes, channels, harbors, etc., as markers and guides to help you locate your position with respect to the shore and to hidden dangers.

All aids to navigation are protected by law. It is not only a VIOLATION OF COMMON SENSE, BUT A CRIMINAL OFFENSE, to cause any damage or hindrance to the proper operation of any aid. Do NOT deface, alter, or move or destroy any aid to navigation. Never tie your boat to a buoy, daybeacon or light structure. AVOID anchoring so close to a buoy that you obstruct the aid from the sight of another boat. If you should unintentionally or unavoidably COLLIDE with or DAMAGE an aid to navigation, this must be reported to the proper authorities.

The Lateral System

You can find your way around on the water using buoys and the appropriate charts. The *shape* of a buoy, its *color*, the *number* painted on it, and, when it is lighted, the *light* characteristics all will tell you what to do when piloting your boat.

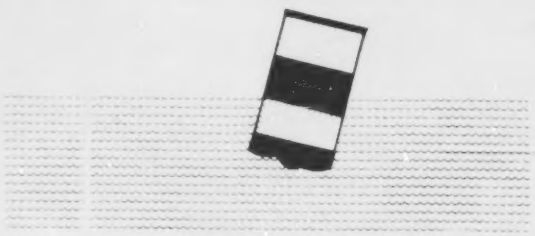
This buoy is called a CAN buoy because of its cylinder-like shape.

Most of the buoys with this shape will be painted BLACK. The number is always odd, that is 3, 5, 7, 9, and so on. You might see a black can buoy that looks like this:

This type of buoy is normally found marking the left side of a channel (as you returned from seaward) and is often used to mark obstructions.

The unusual arrangement on the top of this buoy is called a "Radar Reflector" which causes it to stand out better on a radar screen. The meaning of this buoy is the same as that of a regular black can buoy.

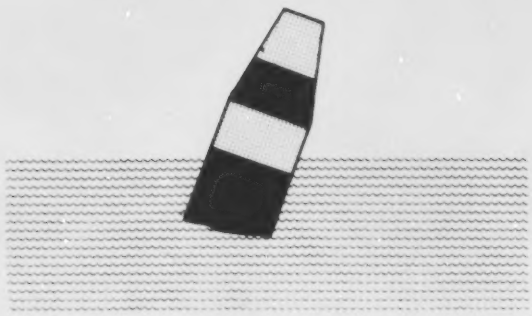
From time to time you may see a can buoy painted in red and black stripes like this:



It won't have a number on it, however. This buoy will mark the junction of two channels.

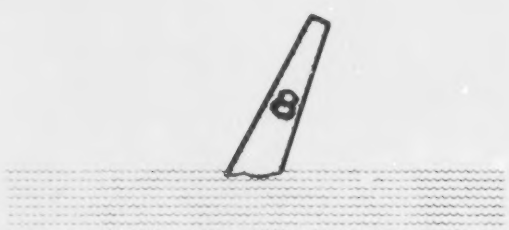
This buoy is called a NUN buoy, again because of its shape. Most of these buoys will be painted solid red and have *white* even numbers on them--2, 4, 6, etc. NUN buoys are almost always used to mark the right side of a channel, as you return from seaward.

Other NUN buoys may be painted with horizontal red and black stripes. Like striped can buoys, these buoys also mark channel junctions. Like this:

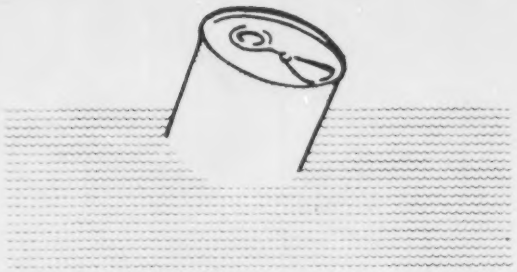


The buoy shown here is a LIGHTED buoy. It may have any of the aforementioned colorings, which define its meaning. It has a light (and sometimes a radar reflector, bell, gong, or whistle) so it may be more easily located in times of low visibility.

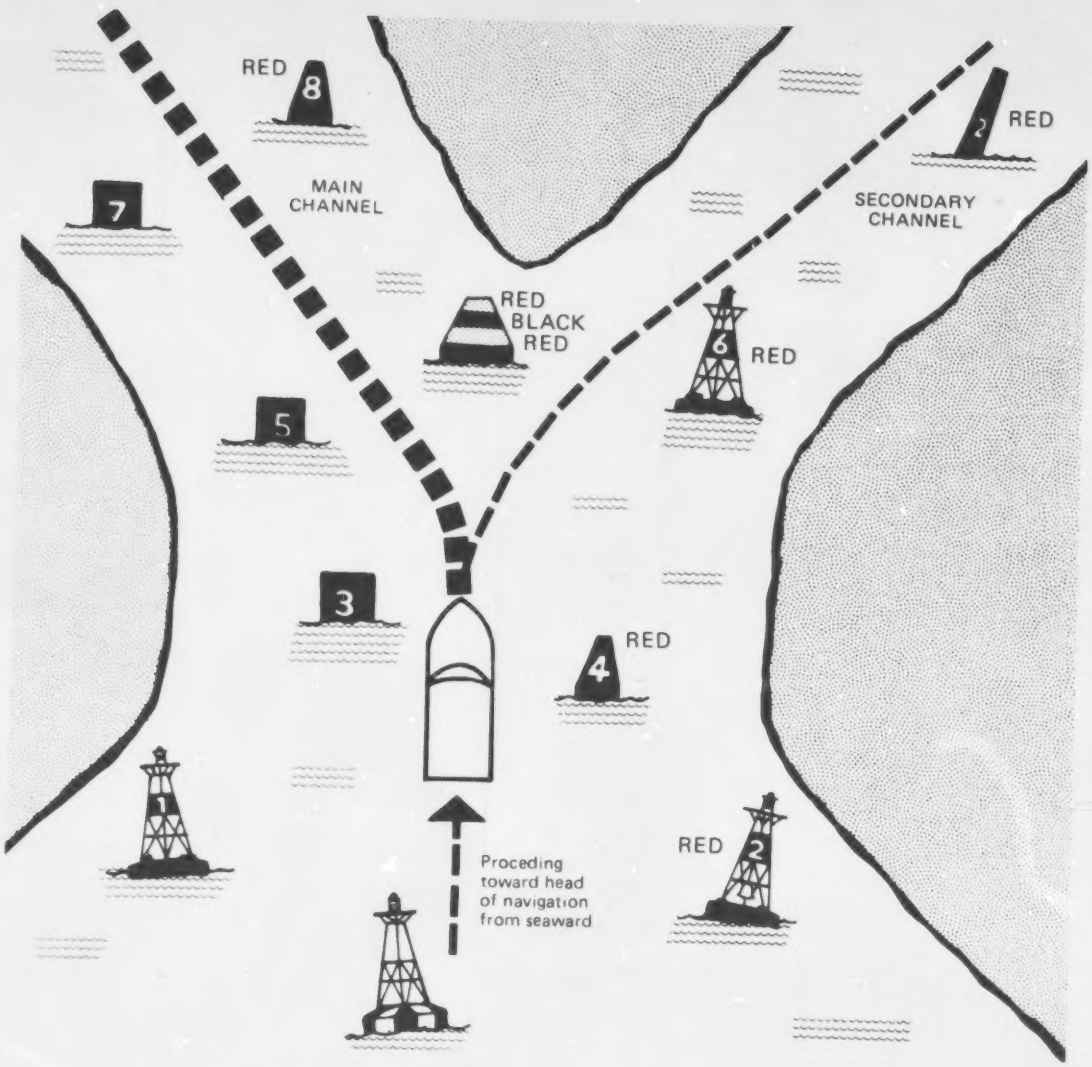
Finally, this buoy is called a SPAR buoy and may be red with even numbers or black with odd numbers. These buoys are used to mark the middle of a channel and are sometimes found marking obstructions.



CAN BUOY



Safe channels or perhaps a water hazard will be marked by buoys. How you pass these buoys or how you follow them to another point is the next thing to learn. A buoy is placed and its identifying characteristics are chosen to mark the safe channel as if entering from "seaward." A lot of Skippers remember this rule by memorizing the three R's or *Red Right Returning*. Like this:



TYPICAL CHANNEL LATERAL BUOY SYSTEM

And of course when leaving port and going out to sea you do the opposite. "Well" you might ask, "what do I do if I'm not entering from seaward?" For boatmen on rivers, going *upstream* against the current is the same as entering from seaward. On lakes when going from the outlet of the lake to its upper end is the same as entering from seaward.

ACTIVITY #29

Mini-unit Topic: Learning How To Be Safe While Boating

Approximate Class Time: 1 period

Capsule Activity Description: Students read the beginning of a story about peer pressure and boating safety. Students supply the ending themselves.

Goal:

To become aware of peer pressure and its likely effect on safety.

Concepts Treated:

- Peer pressure is a strong influence on actions.
- Safety often seems a concept for sissies.
- Alcohol doesn't mix with driving either a car or a boat.
- Everyone in a boat should wear a personal flotation device (PFD).
- Never jump overboard after a person who has fallen overboard.

ACTIVITY

Students read the story below, which also appears on Spirit Masters #9 and 10. They then supply their own ending.

It was late on a summer afternoon, one of those sweltering days when heat rises from the pavements and nothing seems as pleasant as the prospect of getting away from the city and out into the country. Joe was riding along in his father's car and in spite of the heat he felt great. He had finished working at his summer job as a gas station attendant about half an hour earlier and he had gotten paid. He had talked his mother into letting him use the family car to drive out to the lake and go for a swim with his friends. "Be careful," his mother had said. "Are you going to ask Carol to come along, too?" "Yes, I think I will." "Well, good, maybe you'll be careful for her sake if not yours," his

mother had said and waved him on. She liked Carol and knew that she was not the kind of girl who would spur Joe on to foolishness. "We won't expect you for dinner, but don't be home too late." "OK, we won't," he had agreed, but he didn't know whether his mother had heard him since he was already halfway down the driveway.

When he arrived at Carol's house and proposed a drive and picnic and a swim at the lake, she quickly agreed. Her mother, too, urged them to be careful, but she liked to see the young folks have some fun, especially in this heat.

When they were in the car, Joe suggested that maybe they should take another couple along for company. And without much difficulty, they rounded up Bill and Joan, who quickly agreed.

Quite a bit of time elapsed before the four young people got to the lake, though. They had to buy some frankfurters and charcoal and some soft drinks and then it was a forty minute drive to the lake. They started the charcoal in one of the outdoor stoves and all went for a swim. When they got out of the water, they were hungry and put their frankfurters on the grill. Joe opened the cans of soda, but when he offered one to Bill, he declined. "No, thanks, I've got something better." He reached into his picnic refrigerator and produced a can of beer. "Anybody care to join me?" Joan took one, but Bill hooted derisively when Joe and Carol turned down the offer. "What's the matter with you two? Don't you like any fun? Come on, we've got a long time yet before we have to go home, nobody will ever know the difference." "No, thanks, Bill," Joe said, "but I've got to do the driving going home and I don't want any beer right now."

Bill: A little beer isn't going to hurt your driving. In fact, it'll probably relax you and help you.

Joe: No, thanks, you go ahead, but I'll pass.

Bill: Well, OK, but I'm going to do a little driving even though I've had a can of beer.

Joe: Oh, no, you're not going to drive my car, especially not after drinking. Sorry, but that's definite.

Bill: Dummy, I'm not talking about a car. I'm talking about a boat. My uncle's motorboat is tied up here and he said I could use it any time. I've driven it before and he trusts me with it, so much that he's given me a set of keys for it. Come on, you want to go right now?

Joe: Oh, I don't know, it doesn't seem too good an idea. What do you think, Carol?

Carol: I don't know, I don't think so. What do you think, Joan?

Joan: I don't know, I guess maybe it's OK.

Bill: Come on, everybody keeps saying "I don't know." This will be fun. It's got a big engine on it, over 100 horsepower I think. That

makes it safe, you know. We can get out of any trouble real fast. But I don't think we'll get into any. We'll just spin around a few times. What do you say?

Joe: Bill, you know Carol doesn't swim so good. Do you have any life jackets in that boat?

Bill: Who needs life jackets? This lake is just a puddle, you can practically walk from one end to the other. If Carol falls over, I'll jump in after her and get her before she knows she's even been in the water.

Joan: Yeah, who is driving the boat while you're doing that?

Bill: Come on, come on. All you people think of is reasons not to go. Why don't you think of reasons to go? We have a boat, it's hot, we can get a little high with beer and we can cool off riding around. Now what could be better?

Carol: Yah, but...

Bill: No more yah-buts, let's go, gang...

After the students have finished writing the ending, have two or three volunteers read their version of an ending. Try to get different kinds of endings read, if possible.

As a class, discuss what different students perceive as the likely ending, and why. Do the three young people give in to Bill? Is this a case of peer pressure? Do the other three people exert pressure on themselves to conform? Particularly discuss whether drinking while handling a boat is dangerous.

Evaluation:

The story ending which the students write serves as evaluation for this activity.

Variation and Supplementary Activity:

Students read fictional or historical accounts that involve sailing ships or other travel on water.

Among the books to read are these:

Melville, *Moby Dick*

Conrad, *Lord Jim, Heart of Darkness, Nigger of the Narcissus*

Defoe, *Robinson Crusoe*

Swift, *Gulliver's Travels*

Dickey, *Deliverance*

Forester, *Captain Horatio Hornblower* (among others)

Wallace, *Ben Hur*

Dana, *Two Years Before the Mast*

Columbus, *Account of the First Voyage to America*

Twain, *Life on the Mississippi*

Hemingway, *Old Man and the Sea*

Students then report on the books, particularly on safety problems that are mentioned, such as overloading; weather--ignored or insufficiently considered because of greed, single-mindedness, or other reasons; navigational hazards; ignorance; and improper equipment. Although none of these books was written for the explicit purpose of teaching safety at sea, each of them has situations where a boat or ship is in danger. Different characters in these books react differently to the dangers.

ACTIVITY #30

Mini-unit Topic: Learning How To Be Safe While Boating

Approximate Class Time: 1 period

Capsule Activity Description: Students and teacher discuss why fueling a motorboat is hazardous and what steps need to be taken to make it a safe procedure.

Goal:

To know how to fuel a boat safely.

Concepts Treated:

- Gasoline is highly explosive.
- Gasoline is heavier than air.
- A spark of static electricity can start a gasoline explosion.
- Fueling a boat is more dangerous than fueling a car.
- Gasoline is most explosive when it is in vapor form.

ACTIVITY

Students and teacher discuss the proper way of fueling a boat, what the dangers are, and what steps need to be taken to make it safe. You should take the lead role here to make sure that all important points are mentioned. The following points need to be covered:

Always try to fuel the boat in good light. It's too easy to spill gas when it's dark.

Don't smoke and don't allow anyone in or near the boat to smoke while you're filling the tank with gasoline.

Make sure all electrical equipment on the boat is shut off and don't operate any switches while you're fueling.

Keep gasoline fumes out of the boat by closing all doors and hatches. Gasoline fumes (vapor) are much more treacherous than dynamite.

If you use portable tanks, fill them away from the boat. When full, put the caps on tightly and wipe the tanks off.

Keep the metal nozzle of the gasoline hose in contact with the tank *at all times* to prevent a static spark.

Don't spill gasoline--pay attention to what you're doing. Check for leaking fuel line fittings. If some gasoline does spill--don't let it turn to vapor--wipe it up immediately. Get rid of the rag you wiped it up with.

When you're through, put the gasoline tank cap back on tightly. Then check it.

Open up the boat to air it out. Walk around the inside of the boat and give it the sniff test, especially in low places--gasoline vapor is heavier than air and sneakier than nitroglycerin. Ventilate with a power blower, if available. Wait a few minutes before you start the engine.

In general, the discussion should let the students see that gasoline is a very dangerous substance. It is highly explosive: that is of course why it is used as a fuel in internal combustion engines, but it is also why it needs to be handled with care. Many people tend to forget how dangerous gasoline can be, because of the fact that it is constantly and casually handled at gasoline stations and apparently without any untoward results. However, there are important differences between cars and boats in the matter of fueling. If gasoline is spilled in a gas station, it stays behind, on the ground, and soon evaporates. If gasoline is spilled in a boat, it stays in the boat, and, being heavier than air, it collects in the low places of the boat, i.e., around the bilge. Furthermore, there are more safety precautions built into a car than into a boat: for example, there is a firewall between the engine and the passenger compartment; being on solid ground, a car doesn't sway while it is being fueled, so the danger of spills is lessened.

Evaluation:

Students write a set of "commandments" for safe fueling. They list the do's and don'ts of fueling, putting the most important ones first.

Variation and Supplementary Activity

Research Activity #44 serves to supplement this, particularly the statistics about boat accidents that are fire related, given on Spirit Master #13.

MINI-UNIT 9

LEARNING ABOUT EMERGENCY VEHICLES

Students of all ages should be aware of what emergency services are available when needed. At the same time, they should have a proper appreciation that emergency services are just that--aids to be used when needed but not abused and called for when unnecessary.

Furthermore, students need to learn what many persons do not seem to know: that when an emergency vehicle travels to where it has been called, someone's life or health usually is in danger and the emergency vehicle's trip and actions are not a matter for general public entertainment.

Major concepts treated include

- Different kinds of emergencies call for different kinds of services.
- Speed with which an emergency vehicle reaches its destination is determined by length of trip, congestion on the streets, and speed of the vehicle.
- Citizens have a responsibility to help emergency vehicles and emergency personnel.

If you wish, you can enrich this unit by further involving your students in Activity #40, which focuses on emergency services within one's community.

MINI-UNIT 9 LESSON PLAN

Learning about emergency vehicles

Activity #	*Activities*	*Class Time*
31	DESCRIPTION: Class discusses the nature of emergency vehicles. GOAL: To know different kinds of emergency vehicles and the special duties which each performs.	½-1 period
32	DESCRIPTION: Students determine the time needed for an emergency vehicle to reach a given point in their community. GOAL: To know how long it takes before an emergency vehicle can arrive at the scene.	2 periods
33	DESCRIPTION: Students discuss actions which citizens can and should take to facilitate the provision of emergency care by operators of emergency vehicles. GOAL: To know what helps and what hinders emergency vehicles to reach an accident scene quickly and to provide services.	1-2 periods

Total Class Time: 3½-5 Periods.

ACTIVITY #31

Mini-unit Topic: Learning About Emergency Vehicles

Approximate Class Time: ½-1 period

Capsule Activity Description: Class discusses the nature of emergency vehicles.

Goal:

To know different kinds of emergency vehicles and the special duties which each performs.

Concepts Treated:

- What is an emergency?
- Different kinds of emergencies call for different kinds of services.
- Some emergency vehicles, like fire engines, provide more than one kind of emergency service.
- Speed is of the essence in most emergency situations.

ACTIVITY

Set the stage for other activities on emergency vehicles by asking students to identify what they think the expression denotes and then amplify their comments, as necessary, with the following information. "Emergency vehicle services" refers to assistance provided to citizens through the use of vehicles when speed and special equipment are required to prevent or alleviate injury, suffering, or economic loss. Vehicles regularly involved in providing emergency services include ambulances, police cars, fire engines, helicopters, airplanes, and Coast Guard rescue boats.

Discuss the importance to the public of having quality emergency vehicles available by enumerating the instances in which such services are essential or valuable. For example, recent medical studies have shown that the care given to the injured or sick in the minutes immediately following an emergency is crucial to the chances for recovery. A recent U.S. Department of Transportation study stated that "23 percent of auto fatalities died of probably survivable injuries due to problems throughout

the emergency care system." There has been growing concern in many communities over the wide variations in speed of response and quality of care that is available. In a matter of such serious personal concern, it is important for a potential user of this type of emergency service to be aware of the emergency care system in his community, and when and how to use it.

Through a program of education, the transportation consumer can learn to make responsible decisions about the appropriate service to contact in an emergency, how to contact it, methods of assuring adequate community emergency services, and seeking redress of grievances. These skills will facilitate not only the use of the service, but also stimulate its community-wide improvement.

Special mention can be made of the use by the public of the fire department for all kinds of emergencies, both appropriately and inappropriately. Many residents know that a call for an ambulance or police car may not produce help for as long as an hour.* "... there is a backlog of ambulance calls in the South Bronx, and we will have to wait forty-five minutes before one will arrive."* But turning in a fire alarm will always bring the fire fighters. ("The only real sure thing in this town (New York City) is that the firemen come when you pull the handle on that red box."*) Young students need to be aware of both the reliability of this source of emergency help and the selfishness and dangers of using it unnecessarily.

Evaluation:

Students answer questions about emergency vehicles, such as Questions 30 and 32 in Activity #45.

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*New York City Fireman Dennis Smith in his novel *Report From Engine Co. 82*

ACTIVITY #32

Mini-unit Topic: Learning About Emergency Vehicles

Approximate Class Time: 2 periods plus out-of-class time

Capsule Activity Description: Students determine the time needed for an emergency vehicle to reach a given point in their community.

Goal:

To know how long it takes before an emergency vehicle can arrive at the scene.

Concepts Treated:

- The route an emergency vehicle takes is worked out beforehand.
- Speed with which an emergency vehicle reaches its destination is determined by length of trip, congestion on the streets, and speed of the vehicle.
- In addition to the trip time, start-up and set-up times have to be considered.

ACTIVITY

Students try to determine how long it would take emergency vehicles to reach a given point. It is probably best to do this for fire-fighting equipment, since fire houses are easily identified and since fire departments usually know how long it is supposed to take to get to any given point.

The first part of the exercise is to use a map of the city or town under consideration. Locate one of the firehouses on the map. Then pick a point that is within the service area of that firehouse. Preferably the point should be one the students are familiar with and the firehouse should be one in their neighborhood. Determine, from the map, the best way of getting to the "fire" from the firehouse. Keep in mind such things as one-way streets and which streets are wide and available for high speed traffic and which ones are narrow and likely to be congested. After the best route has been determined, measure its length, using the scale of the map. (The best route usually will turn out to be the shortest or most direct route; if the students decide that a longer route is better, have them defend their choice.) From the length

of the route determine the time that it would take to get from the firehouse to the fire. To do this, the students must estimate (1) the average speed of the fire vehicles and (2) the amount of time needed to get started, i.e., for the driver and the firemen to man the vehicle and get it out of the firehouse. They should also add (3) the time needed, after the engine reaches the fire, to set up to fight the fire--connect the hoses to fire hydrants, start the pumps, run up ladders, carry the hoses to the spot where they are needed and start pumping water. This of course also is an estimate and may be omitted, if desired, since it is a fairly difficult estimate.

The second part of the exercise is for the students, with the help of their parents, or older siblings, if necessary, to drive over the route from the firehouse to the "fire." This should be done observing all traffic laws. Students should time the trip as closely as possible and also determine the length of it from the car's odometer. From the length of the route and the time taken by the family car, an average speed can be calculated:

$$\text{Average speed} = \frac{\text{Distance travelled}}{\text{Time taken for trip}}$$

This trip will also serve to acquaint the students with some of the hazards of traffic that firemen would have to cope with if they were to make this trip under emergency conditions.

The third part of the exercise is a trip to the firehouse. If possible, have the students themselves arrange for a visit, either by telephone or letter. Have them explain the purpose of the trip.

At the firehouse, students will probably want to look around. However, the major purpose of this trip is to learn the time it takes to reach the point in question. Have the students ask one of the drivers (1) which route he would take and (2) how long it would take them to reach there. He should be able to answer both questions easily, since fire departments have prescribed routes for all points in their area and since they also have standards about the maximum time it is supposed to take to reach any given spot after the alarm has been received. Ask him (3) what the average speed of the fire engine would be on this trip. If the speed is said to be very large, then the trip should only take a short time. The speed may of course vary, depending on the time of day and traffic conditions. Finally, (4) ask the driver what is the longest trip an engine from this firehouse is expected to take: i.e., what is the maximum amount of time that should elapse (no matter where the alarm comes from) before a fire engine reaches any spot in the service area.

When students return to the classroom, have them compare their estimate of the time to reach the "fire" with what the fire department says it would take. Discuss any differences: did the students overestimate the speed with which the fire engine could travel, for example?

Have them note the difference in time between a trip taken by family car, observing all traffic rules and a trip taken under emergency conditions by an emergency vehicle. How significant is the difference?

Evaluation:

Give students maps of a fictitious city or some city not their own. Have them indicate where firehouses should be located for maximum protection at least cost.

Variations and Supplementary Activities:

Apply this activity to the police department--how long will it take them to respond to an alarm that is phoned in?

See if the Coast Guard has any figures on how long it would take one of their boats to reach a vessel that is in distress. Have the students discuss the implications of the long time even an emergency boat needs to reach a vessel that needs help.

ACTIVITY #33

Mini-unit Topic: Learning About Emergency Vehicles

Approximate Class Time: 1-2 periods

Capsule Activity Description: Students discuss actions which citizens can and should take to facilitate the provision of emergency care by operators of emergency vehicles.

Goal:

To know what helps and what hinders emergency vehicles to reach an accident scene quickly and to provide services.

Concepts Treated:

- Citizens have a responsibility to help emergency vehicles and emergency personnel.
- Curious spectators often interfere with the ability of emergency personnel to do their job properly.
- Many services can be better provided by regular service providers than by emergency service providers.
- False fire alarms are costly in terms of dollars and lives.
- Vandalism of emergency vehicles is a prevalent and costly occurrence.
- Driving a police car, fire engine, or other emergency vehicle with the light flashing and the siren going is no protection against crashes and accidents.

ACTIVITY

Students in small groups or as a class identify specific ways in which citizens can help and have a responsibility--legal, civic, or ethical--to help emergency vehicles perform their services effectively. Examples of relevant citizen action (and inaction) include

Citizens should refrain from placing frivolous calls to ambulance companies, police, fire fighters, Coast Guard. Students can break into small groups and each group can identify one or two calls which it thinks a citizen might consider but should not place to an emergency service. Groups can exchange "calls" and discuss whether the calls are indeed frivolous or not. Examples of unnecessary calls might be calling for an illness or injury when the patient could be easily transported by

conventional auto to a local medical facility for examination; calling for assistance to coax a cat down a tree; calling the fire department instead of a plumber because a water pipe broke; or calling the fire department instead of the Public Works Department to remove a fallen tree. However, when help is urgently needed, citizens should telephone the most appropriate and responsive emergency service.

Citizens who are driving should observe practices which will facilitate the travel and work of emergency vehicles. This includes pulling over to the side of the road when an emergency vehicle is approaching (or, as a pedestrian, not attempting to cross streets in the presence of an emergency vehicle). Obstructing the passage of an emergency vehicle not only delays the speed with which it can provide care, it also can lead to a traffic accident involving the emergency vehicle itself. It also includes not double parking on narrow streets or otherwise obstructing traffic (e.g., to change a flat tire) so as to hamper the swift passage of emergency vehicles should they take the route on which such cars are double parked, and not following emergency vehicles at abnormal speeds in order to take advantage of the clear driving lanes they create or to get to the scene of the emergency to "see the action."

Citizens should never interfere with the operations of emergency vehicles at the scene of the emergency, including standing back from fires, keeping distance from traffic accidents, not slowing down (when driving) to watch what is happening (this occasionally causes on-coming traffic to crash into these slow moving vehicles), and not parking near the scene of an emergency in such a way as to interfere with the arrival of additional emergency vehicles or the departure or deployment of present ones.

Citizens should discourage youngsters and other citizens from engaging in acts of vandalism against emergency vehicles. The most common example of this problem is turning in false fire alarms which add to fire fighters' risk of an accident, create additional expenses for the community and taxpayers, and reduce the opportunity for the fire fighters to respond quickly to a real emergency should one be reported while they are chasing a false alarm. (In New York City, for example, fire fighters respond to 70,000 false alarms a year, or nearly 200 a day.) Other examples of vandalism are throwing objects at fire engines and police cars, stealing emergency vehicles and equipment in unattended emergency vehicles.

When assistance is needed, citizens should actively offer it to providers of emergency service care, such as police during an accident in a remote region or isolated part of the community.

After students have identified obligations citizens have toward drivers of emergency vehicles, the class can discuss why people engage in practices which hamper the provision of emergency care and what, if anything, can be done to discourage such behavior.

Evaluation:

Students write a brochure for use by other students or the community on appropriate citizen behavior in the presence of emergency vehicles and appropriate citizen use of emergency transportation services.

Variations and Supplementary Activities:

Students can interview the providers of emergency services and the drivers of emergency vehicles on what they perceive to be the major ways in which the public interferes with the performance of their jobs and steps the public could take to facilitate their task.

In cities, students can, over the period of one or more weeks, take special note of the behavior of the public when emergency vehicles are in operation and compare findings in class.

Students can research the number of false fire alarms in their community or neighborhood and determine their cost in economic, social, and personal terms to the community and the fire department.

MINI-UNIT 10

BEING SAFE ON VARIOUS VEHICLES

This unit takes in all the modes of transportation that have not been covered so far. In brief and summary fashion it touches on safety problems associated with bicycles, motorcycles, and recreational vehicles of all kinds (all of which require common sense on the part of the user, if they are to be used safely), and the large common carriers, such as buses, airplanes, and trains (all of which have good safety records).

However, when people use recreational vehicles (and bicycles and motorcycles sometimes come under that heading), their concern is usually not with safety, but with having fun. Forgetting about safety can be costly.

Similarly, travel on buses, airplanes and trains has become so routine for so many people that they find it hard to believe that occasionally problems do arise. Some background knowledge and some forethought can be of tremendous help here.

Major concepts treated include

- Careless bike riding can be very dangerous, leading to a wide variety of potentially serious, or even fatal, accidents and injuries.
- It is possible to identify commonsense safety procedures that passengers should be responsible for following when traveling on any mode.
- Gasoline is always a dangerous substance.
- Railroad tracks, dogs, and pedestrians all can be hazardous to motorcyclists.

MINI-UNIT 10 LESSON PLAN

Being safe on various vehicles

Activity #	*Activities*	*Class Time*
34	DESCRIPTION: Class discusses bicycle safety. GOAL: To know about the potential hazards of bike riding, the rules which should be followed to avoid these hazards, and the reasons these rules have been made.	½-1 period
35[a]	DESCRIPTION: Students singly or in groups do research to learn what travelers should and should not do in order to enhance their safety on airplanes, trains, buses, and subways. GOAL: To identify safety tips for passengers on all modes, as well as to understand regulations and procedures followed by carriers to minimize hazards.	1-2 periods
36	DESCRIPTION: Students examine and report on brochures, instructional materials, and other promotional and descriptive literature about recreational vehicles available from dealers and manufacturers. GOAL: To know different kinds of recreational vehicles and their uses and special dangers.	1-2 periods
37	DESCRIPTION: Students poll motorcycle drivers and salespersons, pedestrians, automobile drivers, and other groups on motorcycle safety. GOAL: To understand the special hazards of motorcycle riding and the appropriate skills and precautions needed to cope with these hazards.	2 periods

[a]This activity also appears in Mini-unit 1.

Total Class Time: 4½-7 Periods.

ACTIVITY #34

Mini-unit Topic: Being Safe on Various Vehicles

Approximate Class Time: ½-1 period

Capsule Activity Description: The class discusses bicycle safety.

Goal:

To know about the potential hazards of bike riding, the rules which should be followed to avoid these hazards, and the reasons these rules have been made.

Concepts Treated:

- Careless bike riding can be very dangerous, leading to a wide variety of potentially serious, or even fatal, accidents and injuries.
- Bicycle safety rules, if followed carefully, can prevent serious bike accidents; such rules include obeying normal traffic regulations, using or wearing special equipment, making an effort to concentrate on what the other fellow is doing on the road, and being sure to keep your bicycle in good condition.

ACTIVITY

Conduct a class discussion on bicycle safety. Such a discussion should consider

Basic information about numbers, types, and causes of bicycle-related accidents in the United States

- There are 100 million bicycles currently in use.
- Bicycle sales reached 14.1 million in 1974. In that year, more bicycles were purchased than automobiles.
- It is expected that half the nation's population will be bicycle riders by 1980.

- Bicycle accidents cause the most injuries requiring emergency ward treatment each year (460,000).

- There are 1 million bicycle-related injuries a year, including 60,000 concussions and 120,000 fractures.

- Bicycles cause over 1,000 deaths each year--3 a day.

- Twenty percent of bike accidents occur in rural areas.

- Approximately 26 percent of bike fatalities occur at night.

- Two-thirds of bicycle deaths occur to children aged 5 to 14.

- Bicyclists are not protected in spills or crashes, while auto drivers are.

Major safety rules

- Obey the laws.

- Ride with the traffic; riding against the traffic can result in running into cars coming out of driveways and roads, because auto drivers do not check for traffic coming down the wrong side of the street; running into doors opened from parked cars for the same reason; running into cars on curves, since car drivers will hug the inner side of the road and cannot see a bike rider (nor can the bike rider see the car) until it is too late; compounding the speed of the car and the bike if they collide.

- Do not speed; speeding limits the reaction time a bicyclist needs in order to avoid colliding with pedestrians or vehicles, or skidding on glass, sand, and potholes.

- Signal all turns, so that cars don't run into you as you turn.

- Don't hitch rides with other vehicles.

- Don't ride sidesaddle or on the handlebars.

- Don't weave in and out of traffic.

Special situations and equipment

- Use lights, reflectors, and light-colored clothing, especially when riding at night; the French two-way armband is especially good and so are vests made for bikers in highly visible day-glow orange fabric.

- Consider wearing a bicycling helmet, especially if you ride in heavy traffic.

- Slow down in rainy weather to avoid skids (wet leaves are especially dangerous); brakes, especially caliper ones, function poorly in wet weather.

- Wear clips over long pants to keep cuffs from catching in gears; make sure shoelaces are short for the same reason.

- Avoid traffic whenever possible.

- Don't ride two or more abreast on the road; keep single file.

- Avoid bicycles with high handlebars and small wheels--they are involved in a large percentage of accidents because they are less stable.

- Avoid trying tricks such as "wheelies" (riding on rear wheel only) and "jumpies" (slamming on the brakes so the bike will fly through the air).

- Do not ride a bicycle with a frame that is too small or too large for you.

- Do not ride between lanes of vehicular traffic.

Concentration while riding

- Watch out for cars coming out of driveways and side streets.

- During sunsets and rainy days, be especially careful of cars because they may not be able to see you.

- Watch out for sudden moves by pedestrians.

- Listen for cars coming up behind you.

- Look out for opening doors on parked cars.

- Watch out for potholes, drains, sand, and glass.

- Be especially careful and observant at intersections.

Maintenance of bicycle

- Keep hand brakes properly adjusted.

- Be certain that gears are shifting freely.

- Keep tires properly inflated; check tires before each ride.

Registration of bicycle: In an emergency, a bike registration may help police to contact your parents or other relatives; also may help to recover a lost or stolen bike.

Class discussion can follow on such issues as why many riders commonly ignore these safety rules and what can be done to encourage riders to practice these rules.

Evaluation:

Each student writes a first-person "autobiographical" account of a bike trip that involves as many safe riding practices as possible. Students exchange papers and one student identifies all the safety items included in the other student's paper.

ACTIVITY #35*

Mini-unit Topic: Being Safe on Various Vehicles

Approximate Class Time: 1-2 periods

Capsule Activity Description: Students singly or in groups do research to learn what travelers should and should not do in order to enhance their safety on airplanes, trains, buses, and subways.*

Goal:

To identify safety tips for passengers on all modes, as well as to understand regulations and procedures followed by carriers to minimize hazards.

Concepts Treated:

- It is possible to identify commonsense safety procedures that passengers should be responsible for following when traveling on any mode.
- Certain Federal agencies have responsibility for issuing safety regulations that must be followed by carriers in various modes and by passengers.
- The carriers themselves have responsibility for developing and following additional safety procedures to insure that all possible hazards will be avoided.

ACTIVITY

Students do research, for various transportation modes, to gather the following information: recommended safety procedures for passengers on the mode; potential hazards connected with the mode; government safety regulations for the carrier and its passengers in each mode; additional safety procedures followed by carriers in the mode.

Students can gather this information by consulting books, magazines, and pamphlets in school and local libraries, and by contacting *safety organizations*, such as the National Safety Council, 425 N. Michigan Avenue, Chicago, IL 60611; *private carriers*, such as airlines, intercity

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*This activity also appears in Mini-unit 1.

and interstate bus lines, and railroads; the community service divisions of local transit authorities that run bus lines and rapid transit lines, such as BART (Bay Area Rapid Transit in San Francisco, California) and MARTA (Metropolitan Atlanta Rapid Transit Authority in Atlanta, Georgia); and professionals in your community who have a responsibility for transportation safety, such as policemen, the manager of a local airport, bus drivers, airline pilots or stewards, and the safety director of the local bus company. Students may also write to appropriate Federal agencies that are responsible for transporation safety, such as the Federal Aviation Administration (Washington, D.C. 20591), the Federal Railroad Administration (Washington, D.C. 20590), and the Bureau of Motor Carrier Safety, Federal Highway Administration (Washington, D.C. 20590; for interstate buslines).

Students should be cautioned, however, that the task of these agencies is to write safety regulations for the industries they regulate. While some of the regulations do relate to passengers' behavior, most Federal regulations are quite technical and are directed at the private carriers.

In doing their research, students will want to seek answers to such questions as these:

1. What commonsense safety tips can you suggest for passengers traveling on your mode?

2. Are you aware of any government safety regulations that passengers on your mode must follow?

3. Are there any state or local laws that regulate travelers' behavior and that were designed to enhance their safety?

4. Are there any safety tips, regulations, or laws concerning baggage that travelers should be aware of when using your mode?

5. Are there any potential hazards on your mode which travelers can minimize or avoid by following certain safety tips? (What are the hazards? What are the appropriate safety tips?)

6. Concerning the potential hazards that you just mentioned, what safety regulations have been issued by the Federal government to minimize these dangers?

7. What additional procedures does your carrier follow to minimize each of these dangers?

Students report the results of their research and the class utilizes the information to prepare a chart that will illustrate potential hazards and suggested safety procedures for passengers. Some entries on the chart, for example, might look like this:

Transportation Mode	*Potential Hazards*	*Safety Procedures Passengers Must Follow*	*Safety Regulations Carriers Must Follow*	*Additional Safety Procedures Instituted by Carrier*	*Additional Safety Tips for Passengers*
Airplanes	Turbulent air	Fasten seat belts when instructed	File flight plan	Use of radar to detect bad weather	Keep seat belts fastened at all times
Trains	Being hit by approaching train while waiting on station platform	Stand back of white line	Observe speed limits going through station	Warn passengers of approach over public address system	Do not lean over tracks to look for approaching train
Buses	Collision	Refrain from distracting driver's attention by talking	Obey applicable traffic laws	Use headlights at all times	Notice emergency exit and whether windows can be pushed out in emergency

Evaluation:

Each student selects one mode and writes a brief fact sheet of safety tips for a passenger about to travel on that mode.

Variations and Supplementary Activities:

Students discuss and evaluate the answers they found to Questions 6 and 7 in the previous list. Discussion can center on these points: Do they consider the government's safety regulations to be adequate? Do they consider the carrier's additional safety procedures to be adequate?

Students research and report on procedures followed by Federal agencies in issuing safety regulations, focusing particularly on discovering how citizens can participate in the rulemaking process.

ACTIVITY #36

Mini-unit Topic: Being Safe On Various Vehicles

Approximate Class Time: 1-2 periods plus out-of-class time

Capsule Activity Description: Students examine and report on brochures, instructional materials, and other promotional and descriptive literature about recreational vehicles available from dealers and manufacturers.

Goal:

To know different kinds of recreational vehicles and their uses and special dangers.

Concepts Treated:

- As in all transportation-related accidents, an accident with a recreational vehicle depends on the persons involved, the machine, and the environment.
- Off-road operation of a vehicle is no guarantee against accidents.
- Gasoline is always a dangerous substance.
- Vehicles that are used mainly in winter add the dangers of snow and ice to those of operation.

ACTIVITY

Either by visiting retail dealerships, writing to manufacturers of recreational vehicles, or both, students collect literature describing snowmobiles, trailers, mopeds (motorized bicycles), campers, or dune buggies. The class then breaks into small groups set up around different manufacturers of the same vehicle (e.g., campers) or around different types of recreational vehicles and compares what their materials have to say about the safety considerations involved in purchasing, using, and maintaining these vehicles. Each group may have to break into even smaller groups (or one-person subcommittees) to get further information from dealers, manufacturers, or state agencies on some of the questions listed below.

- For what types of activities can the vehicles be used?

- What are the potential dangers of each of these activities? (Hazards can include not only dangers of vehicle-related injury, but also exposure, freezing, getting lost, being trapped by sudden changes in weather, and mechanical breakdowns.)

- What are the performance capabilities and limitations of each vehicle researched? For instance, a jeep-type vehicle often has a high center of gravity, and may not be appropriate for very steep grades.)

- What types of support from civilization do these vehicles require, such as gasoline, water, plumbing facilities, and electricity? Are there risks associated with being cut off from these services or materials?

- What kind of precautions are needed when fueling the vehicle?

- What options are available for purchase with each vehicle and what are their safety implications? Do they increase the likelihood of mechanical failure? Do luxury features increase or decrease the safety of the vehicle?

- How useful, and how safe, are the vehicles as basic transportation? (Students can consider brakes, tires, maneuverability, visibility, comfort, degree of driving fatigue, gasoline consumption, and ease with which a small person can drive the vehicle.) Are there safety features that are required for automobiles which are not required for some recreational vehicles?

- Are special skills needed to operate any of these vehicles? If so, how can these skills be learned?

- Do any of these vehicles operate in a hostile environment (water, snow, cold weather)? If they do, does this require any special precautions?

- Are there any minimum performance standards which these vehicles should meet (for example, horsepower, speed, weight, and durability)?

- What safety equipment should be carried with each vehicle? (For example, consider the safety implications of the various types of gas cans, flares, chains, shovels, and blankets.)

- How much emphasis is placed on safety, how much information is provided about safety features, and what warnings are provided about safe operation in the promotional literature for these vehicles?

- What are your state's laws concerning the purchase, registration, licensing, and use of each recreational vehicle?

If there are discrepancies among the various manufacturers with respect to standard and optional safety equipment and features, groups discuss why such variations exist and do further research (with manufacturers, local and state agencies, and in the library) to ascertain

factual accuracy of claims in various brochures. Each group prepares a report which is given orally to the class. Class discussion then centers on evaluating utility and safety of the various kinds and models of recreational vehicles.

Evaluation:

Students role play a customer entering a retail store selling recreational vehicles and question a salesperson about the safety features and safe operating procedures for different recreational vehicles.

Variation and Supplementary Activity:

Students can invite salespersons and mechanics to class to explain the safety aspects of the recreational vehicles they sell or service.

ACTIVITY #37

Mini-unit Topic: Being Safe on Various Vehicles

Approximate Class Time: 2 periods plus out-of-class time

Capsule Activity Description: Students poll motorcycle drivers and salespersons, pedestrians, automobile drivers, and other groups on motorcycle safety.

Goal:

To understand the special hazards of motorcycle riding and the appropriate skills and precautions needed to cope with these hazards.

Concepts Treated:

- Certain types of roads are more hazardous for motorcycles than for other vehicles (e.g., gravel roads).
- Railroad tracks, dogs, and pedestrians can all be hazardous to motorcyclists.
- Carrying passengers or packages can add to hazards.
- Proper protective clothing must be worn.

ACTIVITY

The class breaks into small groups, with each group responsible for developing a short questionnaire with which to interview a different type of citizen about motorcycle safety. Possible people to interview include motorcycle drivers, motorcycle passengers, motorcycle salespersons, motorcycle repair persons, pedestrians, automobile drivers, bicyclists, truck drivers, and bus drivers. Sample questionnaires for motorcyle drivers and automobile drivers are provided at the end of the activity.

After conducting their interviews, the groups analyze the results. Each group reports conclusions and findings to the class, and the class seeks to develop a consensus, based on the opinions of each of the types of citizens interviewed and on their own opinions, of what the major motorcycle safety problems are. Some of the major safety problems which you can bring up for discussion if the students' research does not reveal them include driving on hazardous roads--roads with slicks, rocks, rain, ice, litter; gratings, sand, loose gravel, mud, holes; crossing railroad

tracks; avoiding dogs; watching for passengers alighting from parked cars into the lane of traffic; carrying packages; carrying passengers; and wearing proper clothing and helmets. Special consideration should be given to wearing proper clothing and helmets.

The motorcycle operator should be aware of the important part outer apparel plays in providing protection. Protective outer garments should be sturdy and large enough to provide room for additional clothing underneath for warmth. Garments should be loose enough to assure good mobility for proper control of the motorcycle when in motion. Variable climatic conditions make it possible for the cycle operator to select from a wide range of protective clothing. Many forms of sturdy material are available from which may be selected a zip-front windproof jacket.

In addition to a windproof jacket the operator should wear gloves with gauntlet type cuffs to prevent wind from entering sleeves. Many outer garments are available in safety colors--largely fluorescent, or with fluorescent stripes which make the operator more readily visible to drivers of other vehicles.

Safety helmets should be worn at all times. This is mandatory in all but three states. Several models of helmets are available and the operator should be able to find one that suits his preference. Lightweight helmets are comfortable and give very effective protection. The right time to wear your helmet is every time you ride your motorcycle!

Goggles are an essential item and should be worn at all times. Goggles protedt face and eyes from flying insects, rocks, and other airborne matter which could cause injury to the eyes. The distraction of even minor contact with a flying object could have more serious consequences if it causes loss of control by the rider. Goggles should (1) be constructed of shatterproof material; (2) be properly ventilated to prevent steam-up which may cause distortion to the field of vision of the wearer; (3) be constructed to protect the eyes from foreign matter; (4) be securely fastened so they will not blow off while the motorcycle is in motion.*

You can supplement this information with the following, taken from *Motor Cycle Facts*, published by the National Safety Council, August 1975.

Types of Motor Vehicles Involved in Accidents

In 1974, motorcycles, motor scooters, and motorized bicycles, which will be referred to simply as motorcycles in the rest of this report, comprised 3.7 percent of the total vehicle registrations. These

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*Discussion on clothing and helmets is taken from *Motorcycle Safety*. (Motorcycle Industry Council, Inc.: Washington, D.C.).

vehicles represented 1.5 percent of the total number of vehicles in all motor vehicle accidents. Therefore, based on their percentage of total vehicles registered, motorcycles have good experience in the overall accident picture. However, these vehicles represented 5.6 percent of all vehicles involved in fatal accidents. Deaths of operators and passengers of motorcycles totaled 3,260. The figures on the number of vehicles involved in accidents are shown in the table below.

Passenger cars have the opposite experience from that of two-wheeled motor vehicles. Passenger cars comprised 77.5 percent of the registered vehicles in 1974. They represented 82.0 percent of the vehicles involved in all motor vehicle accidents and 70.4 percent of those in fatal accidents. In summary, passenger cars were involved in more than their due share of total accidents based on vehicle registrations; motorcycles in less. Passenger cars were involved in less than their share of fatal accidents based on registrations; motorcycles in more.

TYPES OF MOTOR VEHICLES INVOLVED IN ACCIDENTS, 1974

Type of Vehicle	In Fatal Accidents		In All Accidents		Percentage of Total Vehicle Registrations[a]	No. of Occupant Fatalities
	Number	%	Number	%		
All Types	57,800	100.0%	25,100,000	100.0	100.0%	[d]
Passenger cars	40,700	70.4	20,600,000	82.0	77.5	26,600
Trucks	11,500	19.9	3,400,000	13.5	18.4	4,900
Truck or truck tractor	7,300	12.6	2,730,000	10.9	17.6	[e]
Truck tractor and semitrailer	3,300	5.7	440,000	1.7	0.8	[e]
Other truck combination	900	1.6	230,000	0.9		[e]
Farm tractors, equipment	170	0.3	16,000	0.1	[c]	150
Taxicabs	240	0.4	120,000	0.6	0.2	150
Buses, commercial	350	0.6	150,000	0.6	0.1	120
Buses, school	180	0.3	43,000	0.2	0.3	50
Motorcycles	3,000	5.2	360,000	1.4	3.7	2,900
Motor scooters, motor bikes	200	0.4	16,000	0.1		260
Other[b]	1,420	2.5	365,000	1.5	[e]	1,270

Source: Based on reports from 19 state traffic authorities. Vehicle registrations based on data from Federal Highway Administration and International Taxicab Association.

[a] Percentage figures are based on numbers of vehicles and do not reflect miles traveled or place of travel, both of which affect accident experience.

[b] Includes fire equipment, ambulances, special vehicles, other.

[c] These vehicles are not included in total vehicle registrations; estimated number--5,000,000.

[d] In addition to these occupant fatalities, there were 8,700 pedestrian, 1,000 pedalcyclists, and 100 other deaths.

[e] Data not available.

Motorcycle Rider Deaths Increase

The number of motorcycles in the U.S. is continuing to rise sharply. Compared with a 78 percent increase in all motor vehicles since 1961, motorcycle registrations increased 734 percent.

Deaths of motorcycle riders increased 1 percent in 1974 over 1973. This increase, the sixth in succession, followed two years of decreases in motorcycle rider deaths. The exact reason for this is not known, but it has been suggested by some authorities that varying enforcement of helmet laws and changes in the laws, and lack of helmet legislation in some states, have had an unfavorable effect.

The mileage death rate for motorcycle riders in 1974 is estimated at about 14 (deaths per 100,000,000 miles of motorcycle travel). Based on data collected by the Federal Highway Administration, the 1974 rate represents a decrease from the 1973 rate of 16. The motorcycle mileage death rate of 14 compares with the overall motor vehicle death rate of 3.6 which includes pedestrian and nonoccupant as well as occupant deaths.

Severity of Motorcycle Accidents

When a motorcyclist is involved in an accident, his chances of being injured or killed are greater than if he were riding in a vehicle which afforded more protection. Nationally, for all types of vehicles, 8.1 percent of the accidents involved death or injury. State studies have shown that the following percentage of all accidents involving motorcycles resulted in death or injury: Kentucky in 1969, about 88 percent, 93 percent in 1970; Kansas, 88.6 percent in 1966 and 82.4 percent in 1969; North Carolina, 90.3 percent in 1966-1967.

Injuries sustained by motorcyclists involved in accidents tend to be more severe than those to people in accidents involving other types of vehicles, according to New York State studies. For example, the most severe type of injury was suffered by 23 percent of those injured in motorcycle accidents, compared to 11 percent of the persons injured in all vehicle accidents. New Jersey had similar experience with motorcyclists having serious injuries twice as often, percentage-wise, as occupants of all vehicles.

The actual number of motorcyclists injured annually is not known. However, for 1974, the total is indicated to have been slightly more than 350,000, including both minor and severe injuries.

Types of Motorcycle Accidents

Collision with another motor vehicle is the predominant type of motorcycle accident. This type of accident as a percentage of all motorcycle accidents has ranged from 67 percent in Kansas to 82 percent in Illinois.

In collisions with other vehicles, the motorcyclist is not always to blame. Many people have observed that drivers of larger vehicles do not always realize that motorcycles, especially motor scooters and motor bicycles, are also motor vehicles and should be treated as such. In most cases, automobile drivers claim they did not see a motorcyclist in time to avoid an accident. The University of North Carolina Highway Safety Research Center reports that in collisions between motorcycles and automobiles, the automobile driver is more frequently guilty of a traffic violation. For example, Johnson reports that in motorcycle/other motor vehicle accidents, motorists were most often at fault when one vehicle cut off another.

Noncollision accidents are next in importance. The California Motorcycle Study showed no appreciable difference between the percentage of motorcycle accidents involving running off the road and the nonmotorcycle experience for the same situation; relatively speaking, however, motorcycles overturned in the road much more often than did other vehicles. This latter point was noticed in other state reports also. Motorcycles are involved in few pedestrian accidents.

Contributing Circumstances

Due to different categories of possible contributing circumstances to motorcycle accidents, a complete comparison between the state reports is not feasible. In the total motorcycle accident experience, Wisconsin and Kentucky listed "speed too fast" as the principal circumstance. "Failure to yield right of way" was the most often reported circumstance in Michigan, Illinois, and Kansas. In fatal accidents, these same studies all listed "speed too fast" as the most frequent circumstance.

For drivers of all vehicles, failure to yield right of way was the chief type of improper driving in all accidents; in fatal accidents, it was speed too fast.

Speed. Although not specifically mentioned in all state reports, speed usually included speed too fast for conditions. Two states, Vermont and Washington, supplied information on the speed of the motorcycle at the time of the accident. In both studies the speed range most often recorded was 21 mph to 30 mph. The Washington study indicated that standard size motorcycles tended to be involved in accidents at a somewhat higher speed than lightweight motorcycles were. California reported that 89 percent of the motorcycle accidents in that state occurred at speeds of 40 mph or under compared to about 77 percent for other vehicles.

Roads and Weather

The majority of motorcycle accidents (84 to 96 percent) occur on dry roads. This might be expected since motorcycles are not driven much on wet or icy roads. New York showed that most of the motorcycle

accidents in that state occurred on level roads with no traffic control devices present. Accidents happened with equal frequency at intersections and between intersections.

California also showed a majority of motorcycle accidents occurred on straight, level roads; however, the percentage of such accidents was somewhat less than that shown for nonmotorcycles. California likewise listed no traffic controls present in the majority of motorcycle accidents.

According to data from the University of North Carolina Highway Safety Research Center, about 13 percent of the single vehicle motorcycle accidents were associated with road defects. The North Carolina data also indicated that the most serious defect reported in 7 percent of the single vehicle motorcycle accidents was loose materials on the road surface.

A majority of the accidents take place during daylight hours.

Age, Sex, Residence of Operator

All studies, except New York's, show that a majority of motorcycle operators involved in accidents are young--under 25 years of age. Most of the other studies show from 42 to 66 percent of the motorcyclists in accidents are under 20 years of age.

In excess of 90 percent of the motorcycle operators were males. However, limited information indicates that about 15 to 20 percent of the people killed or injured were females. This would indicate, then, many of the females injured were passengers on the machines.

The Vermont study reported that the motorcycle operator was within five miles of his residence when involved in an accident in 64 percent of the cases; within 15 miles in 79 percent. Other state studies indicate motorcyclists to be local residents in more than three-fourths of the accidents.

Passengers

Limited information is available on whether the person injured was an operator or passenger. "Passengers appear to figure more heavily in single vehicle accidents than in multivehicle accidents," according to the University of North Carolina Highway Safety Research Center. The study also indicated the presence of passengers in 60 percent of the accidents associated with blowouts (possibly due to the additional weight).

Experience of Operator

Limited information is available on the cycling experience of motorcyclists involved in accidents. It can be surmised, however, that most motorcyclists involved in accidents have not had much riding experience since cycling has increased greatly in recent years and the average age of motorcyclists is young. A survey of 123 patients at the Methodist Hospital in St. Louis Park, Minnesota, and at the Hennepin County General Hospital, Minneapolis, revealed that 20 percent were using the motorcycle for only the first or second time. The Vermont study reported 21 percent of the operators had driver's licenses for less than one year. California's motorcycle report showed that four times as many motorcycle accidents than nonmotorcycle accidents involved drivers with less than one year's driving experience.

The Minnesota hospital study mentioned above reported that 70 percent of the injured had either rented or borrowed the motorcycle. A study by the Minneapolis Police Department showed similar results. The Washington State study of 1965-1966 showed that 29 percent of the cyclists involved in fatal accidents did not own the motorcycle which they were riding. While there was a rather wide variation in the percentage of motorcycles which were borrowed in accidents, these and a couple of other studies indicate that the figure is well in excess of 20 percent. This would imply that many motorcycle accident victims were not regular motorcycle operators or passengers and/or had mishaps early in their cycling experience.

Borrowers of motorcycles were involved in about 23 percent of the reported motorcycle accidents in North Carolina while they drove approximately two percent of the total annual motorcycle mileage, according to the University of North Carolina Highway Safety Research Center.

Training in the proper operation of a motorcycle is an important aspect directly or indirectly involved in most of the above paragraphs. A study of motorcycle accident victims in the Charlottesville, Virginia area showed that 72 percent of the operators had received no instruction in operating motorcycles. One of the three cited major contributing factors in injury-producing accidents involving students at the University of North Carolina, Chapel Hill was "lack of knowledge of the operation of the vehicle on the part of the owners and borrowers, relating particularly to turning, stopping, and riding properly in traffic," according to the specially conducted research report on injuries arising from motorcycle accidents. The Johnston study claims motorcyclists' inexperience and inappropriate use of their vehicle controls while riding figured highly as factors contributing to motorcycle accidents.

The authors of "The California Motorcycle Study" cogently state the following in their conclusion: "In the present writers' estimation, the most important finding of this study concerns the role of age and experience in motorcycle accidents and traffic convictions. Both the regression and chi-square analyses suggest that lack of skill or experience are more important factors in motorcycle accidents than in nonmotorcycle accidents. Since level of skill is a partial function of vehicle familiarity, training, and licensing, more effort in these areas is indicated...

the data indicate that a person who can drive a car safely may not always be able to drive a motorcycle safely. Consequently, serious consideration would be given toward insuring that persons not be authorized to drive motorcycles unless they possess the roquisite skill."

Part of Body Injured

All studies show that the head, arm, and leg are the parts of a motorcyclist's body most often injured. The most serious type injury is that occurring to the head. An Illinois study revealed that two-thirds of the motorcyclists killed in that state suffered skull fractures. A University of California study indicated that of the 36 motorcycle occupants who remained within 10 to 15 feet of the impact area, 92 percent suffered head injuries and 28 percent died from such injuries; 83 percent of these occupants suffered leg injuries.

Motorcycle Legislation

The high likelihood of death or injury to a motorcycle rider involved in an accident has prompted many states to take action to protect the cyclist. Forty-seven states and the District of Columbia require motorcycle riders to wear safety helmets. More than thirty states and the District of Columbia require a special license for motorcycle operation, periodic motorcycle safety inspection, and eye protection. Fifteen of the states require the use of headlight at all times.

Evaluation:

Students role play a police academy instructor telling a class of recruits or trainees how to drive their motorcycles safely. "Trainees" ask the "instructor" appropriate questions.

Sample Interview of Automobile Drivers

Sex: M F

Age: 16-21 22-29 30-39 40-59 over 59

Have you ever driven a motorcycle: Yes ____ No ____

Have you ever been a passenger on a motorcycle: Yes ____ No ____

---

1. Have you ever been in an accident or near-accident with a motorcycle? If not, skip to Question 4.

2. Briefly describe the (near-) accident(s). In particular, where did they occur? At what time of day? What caused them?

3. How could each (near-) accident have been prevented?

4. Are there ways in which motorcyclists drive which you feel are dangerous? If so, what are these dangerous driving practices?

5. Do you find it difficult sometimes to see motorcycles? If so, is this especially at night or in bad weather?

6. Do you drive any differently when you see a motorcyclist? If so, what do you do that's different?

7. Do you ever feel angry at motorcyclists? If so, what about them or their driving behavior makes you angry?

Sample Interview of Motorcycle Drivers

Sex: M F

Age: under 16 16-21 22-29 30-39 40-59 over 59

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1. Have you ever been in a motorcycle accident? If not, skip to Question 5.

2. Briefly describe the accident(s). In particular, where did they occur? At what time of day? What caused them? Were you wearing a helmet?

3. How much experience did you have driving a motorcycle when each accident occurred?

4. How could each accident have been prevented?

5. Have you had any "close shaves" driving a motorcycle? If not, skip to Question 7.

6. Briefly describe the near-accident(s). In particular, where did they occur? At what time of day? What caused them?

7. What do you feel are the most serious safety problems for a motorcyclist?

8. Do you ever find yourself taking chances or running risks driving a motorcycle because you "get carried away" by the fun or sense of power from driving one? If so, have you taken any steps to prevent yourself from running these risks?

9. Do you think certain kinds of people make better motorcycle drivers than others? If so, what kind and why?

10. Do you feel automobile drivers contribute to motorcycle safety problems? If so, in what ways?

MINI-UNIT #11

DOING SUPPLEMENTARY RESEARCH ON TRANSPORTATION SAFETY

This unit contains six activities that require students to conduct research. Most of these activities require considerable amounts of out-of-class time as well as at least 2 class periods. They are meant for those students who like to do individual research projects and can benefit from them. Often, the entire class will be able to benefit from the research, if those who do the research will report their results to the class.

The activities deal with topics that have already been touched on in the preceding mini-units, but they give an opportunity for the student to become more deeply involved with these topics. The activities can be used for extra credit, or for those students who are a little ahead of the rest of the class in their ability to work without supervision.

The major concepts treated are those that appear in the preceding mini-units.

No separate evaluation methods are give for these research activities; the quality of the research serves as an evaluation.

MINI-UNIT 11 LESSON PLAN

Doing supplementary research on transportation safety

Activity #	*Activities*	*Class Time*
38	DESCRIPTION: Students discuss what types of persons might be most inclined or resistant to wearing safety belts. They then poll these people to test their theories. GOAL: To learn what factors incline people to wear safety belts.	1½-2 periods
39	DESCRIPTION: Students research various features of cars, including safety features, so that they can simulate the purchase of a car that meets their needs and desire. GOAL: To learn what the various features of cars are and which ones contribute to safety and which ones don't.	2-4 periods
40	DESCRIPTION: Students identify the emergency services available in their community and the reasons for which each is used. GOAL: To know what emergency services are available in one's own community.	1 period
41	DESCRIPTION: Students research the government's role in promoting driver safety and discuss the extent to which safe driving behavior can be "legislated." GOAL: To become aware of the controversy concerning the extent to which personal actions can be and should be matters for legislation.	1-2 periods

MINI-UNIT 11 LESSON PLAN (CONTD.)

Doing supplementary research on transportation safety

Activity #	*Activities*	*Class Time*
42	DESCRIPTION: Students participate in a hearing on highway construction or other issue related to transportation safety. GOAL: To understand the political process through which decisions are made on matters that are of public concern (such as safety).	2-4 periods
43	DESCRIPTION: Students examine official (Coast Guard) tables on boating accidents and interpret them, making use of graphs, charts, and written explanations. GOAL: To understand from statistical evidence what are the most frequent kinds and causes of boating accidents.	1-1½ periods

Total Class Time: 8½-14½ periods.

ACTIVITY #38

Mini-unit Topic: Researching Transportation Safety

Approximate Class Time: 1½-2 periods, plus out-of-class time

Capsule Activity Description: Students discuss what types of persons might be most inclined or resistant to wearing safety belts. They then poll these people to test their theories.

Goal:

To learn what factors incline people to wear safety belts.

Concepts Treated:

- Knowledge that safety belts contribute to safety does not necessarily result in people actually wearing them
- The correlation between having been in an accident and wearing safety belts
- Right of the government to impinge on people's freedom for the sake of their safety

ACTIVITY

Students begin this activity in small groups by identifying what types of persons they consider most likely to wear safety belts and be favorably disposed toward their use and which types of people would be hostile. Types of people students can speculate about include people who have been in serious automobile accidents, teenagers, parents of small children, women, men, the elderly, and people with the most education. In addition to speculating on which of these groups, if any, is most likely to wear safety belts, students also discuss what their reasoning is for their speculations. Then each group develops a poll by which to test their theories. A sample poll may be found at the end of the activity. Each group then divides up responsibility for conducting the survey and proceeds to interview a reasonable number of respondents.

After completing their interviews, groups analyze their findings. drawing appropriate correlations between the answers and the types of persons who responded. Groups present findings to class and comparisons between the groups' findings are made. Follow-up discussion takes place around one or more of the following questions:

1. Did the polls confirm the students' predictions about the types of people most likely to wear safety belts?

2. If not, what might account for the poor predictions?

3. If so, what might explain why some groups wear belts more often than others? (Or, if there were no differences in seat belt use or in attitudes toward safety belts between the groups polled, what might account for the uniformity of behavior and attitudes?)

4. If all the groups may have the same behavior and attitudes, do the groups have different reasons for their similar behavior and attitudes?

5. Based on the poll results, are any groups of people most likely to be particularly responsive or hostile to suggestions to use seat belts?

6. Are certain individuals likely to wear seat belts based on certain personality traits? For example, are people who tend to be submissive and obedient more likely to wear them? Are people who are very orderly and methodical more likely to wear them than disorganized people?

Variations and Supplementary Activities:

Students can poll the public on when people are most likely to use safety belts--for example, at high speeds, for long distances, on turnpikes, in snow or rain or darkness, with passengers (what kind?).

Students can develop their poll around other safety practices, habits, and attitudes in addition to or instead of around safety belt use.

Sample Poll on Safety Belt Use and Activities

Sex: M ___ F ___

Age: 5-10 ___ 11-15 ___ 16-21 ___ 22-29 ___ 30-59 ___ 60 and over ___

Are you the parent of any children under twelve? Yes ___ No ___

Did you graduate: High School ___ Junior College ___ College ___

Do you have a driver's license? Yes ___ No ___

Have you ever been in a serious automobile accident? Yes ___ No ___

1. Do you normally wear seat belts when you are driving an automobile?

   Yes ___ No ___

2. Do you normally wear seat belts when you are the passenger in a car?

   Yes ___ No ___

3. When you are driving a car, do you normally suggest to your passengers that they buckle up

	Yes	No
if passenger is your child:	___	___
if passenger is your friend:	___	___
if passenger is your spouse:	___	___
if passenger is your parent:	___	___
if passenger is your girl/boyfriend:	___	___

4. If you do not normally use seat belts, why don't you?

   _____

   _____

   _____

5. If you normally wear seat belts, what do you think of people who don't?

   _____

   _____

   _____

6. Do you believe there should be a law requiring drivers and passengers to wear seat belts? Yes ___ No ___

7. Do you believe that cars should be built so that they cannot start unless every driver and passenger has his or her seat belt fastened?

   Yes ___ No ___

ACTIVITY #39

Mini-unit Topic: Researching Transportation Safety

Approximate Class Time: 2-4 periods plus out-of-class time

Capsule Activity Description: Students research various features of cars, including safety features, so that they can simulate the purchase of a car that meets their needs and desire.

Goal:

To learn what the various features of cars are and which ones contribute to safety and which ones don't.

Concepts Treated:

- There are a variety of different sources of information on cars, such as manufacturers' brochures, salesmen, consumer publications, governmental reports.
- Safety is only one of many considerations that goes into the manufacture and purchase of a car.
- Most cars and car purchases represent a compromise among competing features, such as speed, safety, comfort, price.

ACTIVITY

A small group of students stipulates a type of car it wants to buy in terms of safety and other considerations and then takes the necessary steps to ensure that it "buys" a car which meets its purchase criteria.

The group begins by agreeing for purposes of research on a type of car it wants to buy: for example, a mid-size inexpensive car, a large luxury car, a compact car, or a second-hand foreign sports car. The group then engages in appropriate research to determine which particular car to "buy." Research can include the following:

- Reading literature on the types of cars available in the desired class, including findings in consumer and automobile magazines, such as *Consumer Reports* and *Road and Track*, reports from the National Highway Traffic Safety Administration (U.S. Department of Transportation) on safety recall campaigns for the type of car in question, and other sources, such as Ralph Nader's studies on specific cars in *Unsafe at Any Speed*

- Visiting showrooms and asking salespersons questions
- Identifying owners of the type of car in question, such as classmates, teachers, parents, and neighbors, and asking them about their satisfaction with their car's safety features
- Test-driving cars of the type sought provided by parents, friends, and salespersons
- Interviewing mechanics on their experiences with the safety problems of the type of car in question

After identifying research approaches, the group divides up responsibility for the research and conducts it. Upon completion, the group reassembles to compare findings and select the car that it should "buy" based primarily on safety considerations. Group prepares and presents a report to the class on its research and decision and responds to questions from class and teacher.

Evaluation:

Students write the section on safety to a hypothetical "Handbook on Buying a Car," identifying safety considerations which should be considered by car buyers and methods by which car purchasers can identify safe cars to buy.

Variation and Supplementary Activity:

Students can conduct the activity as individuals, or an entire class can divide up the research tasks and conduct the activity.

ACTIVITY #40

Mini-unit Topic: Researching Transportation Safety

Approximate Class Time: 1 period plus out-of-class time

Capsule Activity Description: Students identify the emergency services available in their community and the reasons for which each is used.

Goal:

To know what emergency services are available in one's own community.

Concepts Treated:

- Different kinds of services exist for different kinds of emergencies.
- Availability of services depends on a number of factors, such as size of community, time of day service is needed, frequency with which a certain kind of emergency is encountered.
- Quality of emergency service depends on such factors as response time, training of personnel, availability of back-up systems.

ACTIVITY

Students in small groups or as a class research the availability and quality of various types of emergency vehicles in their community, including ambulances, police cars, fire engines, boats, and helicopters. Research can include one or more of the following methods: brainstorming; seeking information from the teacher; interviewing appropriate community resources, including school nurse or doctor, family doctor, police officers, fire fighters, ambulance drivers, operators of ambulance services including morticians, local government agency officials in departments of public health, and local Red Cross Chapters; observing and examining ambulances, boats, helicopters, fire engines which are accessible in the community; requesting literature from government agencies, professional organizations, and private groups concerned with emergency care, such as:

Government agencies

Health Services Administration
U.S. Department of Health, Education and Welfare
Parklane Building, 5600 Fishers Lane
Rockville, Maryland 20852

National Highway Traffic Safety Administration
U.S. Department of Transportation
400 7th Street, S.W.
Washington, D.C. 20590

Professional organizations

International Association of Chiefs of Police
11 Firstfield Road
Gaithersburg, Maryland 20760

International Association of Fire Chiefs
1725 K Street, N.W.
Washington, D.C. 20006

National Ambulance and Medical Services Association
1435 G Street, N.W.
Washington, D.C. 20005

National Sheriffs' Association
1250 Connecticut Avenue, N.W.
Washington, D.C. 20036

Private groups

The American Red Cross
7th and D Streets, Northwest
Washington, D.C. 20006

Students can seek the following type of information about availability and quality of services provided by each transportation vehicle:

Ambulance Service: Availability

- Number of companies who provide service: _____
- Number of ambulances in the community: _____
- Number of companies providing 24-hour service: _____
- Areas of the community without nearby service:

_____

_____

_____

- Number of companies providing immediate service in ten minutes or less: _____

- Usual amount of time elapsing between request for ambulance and time of arrival: _____

Ambulance Service: Quality

- Number of companies which provide emergency medical technicians with ambulance service: _____

- Number of companies which provide attendants with first-aid training along with ambulance: _____

- Number of companies which provide in their ambulances

  Oxygen: _____
  Suction equipment (aspirator): _____
  Two-way radio service: _____
  Resuscitator: _____
  Cardiac monitor: _____

Police Emergency Services: Availability

- Location of nearest police stations:

  _____

  _____

  _____

- Number of police cars available on each shift:

  Day: _____
  Evening: _____
  Night: _____

- Number of stations with police ambulances:

  _____

- Total number of police ambulances available:

  _____

Police Emergency Services: Quality

- Number of police officers with training in first aid: _____

- Safety equipment provided in police cars:

  Oxygen: _____
  Resuscitator: _____

Suction equipment (aspirator): _____
Stretcher: _____
Blankets: _____
Basic first-aid equipment (gauze, scissors, etc.): _____

- Average amount of time elapsing between time of request for help and time of arrival at scene of emergency: _____

After determining availability and quality of emergency services, the class discusses when to use each service and how to contact it. Generally, the "when and how" of using emergency vehicle services depends on the availability and quality of services in the community rather than on Any hard and fast rule, such as "Always call the police for help in an emergency involving an injury." Whom to call will depend on who provides emergency services in a given community and which agencies provide the best care.

Variations and Supplementary Activities

Students can develop an "ideal" emergency vehicle system and then compare their "ideal" system with the system operating in their community. Discuss how the "ideal" system would be funded and how the community system is paid for.

The class can divide into small groups with each group responsible for researching the nature and quality of a different emergency service in the community.

Two realistic paperback novels by a police officer and a fire fighter, respectively, can be read for insight into the types of emergencies in addition to crimes and fires to which they respond: *The New Centurions*, by Joseph Wambaugh (Dell), and *Report from Engine Co. 82*, by Dennis Smith (Pocket Books).

Students can write stories involving the absence of one or more emergency services--for example, describe what might happen in a town without fire fighters, police officers, or ambulances.

ACTIVITY #41

Mini-unit Topic: Researching Transportation Safety

Approximate Class Time: 1-2 periods plus out-of-class time

Capsule Activity Description: Students research the government's role in promoting driver safety and discuss the extent to which safe driving behavior can be legislated.

Goal:

To become aware of the controversy concerning the extent to which personal actions can be and should be matters for legislation.

Concepts Treated:

- Some citizens believe that there are limits to what governmental actions can require individuals to do.
- Some citizens believe that some matters are fit subjects for legislation; others are not.
- Some citizens believe that safety is not a totally private matter, but involves the public at large as well.

ACTIVITY

Students begin their research by reading the attached selection from *The Voice of the Transportation Consumer*. On the basis of that reading (which summarizes opinions expressed nationwide) and their own interests, groups of from four to eight students select a topic concerning which they will either write a report or hold a debate with another group.

Sample topics for search or debate include:

- Resolved that safety belt use should be mandatory, with a $20 fine for every time a driver (or passenger) is apprehended without a seat belt.
- Resolved that the central business district should be declared off-limits to automobiles between the hours of 7 A.M. and 6 P.M. and all day Saturday and Sunday.

- Resolved that automobile manufacturers should be prohibited from making cars that can travel faster than 65 miles per hour.

- Resolved that drivers should have to renew their driver's licenses, and take a new driving test, every five years.

- Resolved that every state should have a semi-annual automobile inspection to test for proper functioning of horn, directional signals, windshield wipers and lights, and for safe condition of tires, brakes, and steering assembly.

- Resolved that any driver or passenger involved in a traffic accident which is reported to an insurance company or police station should be fined $25 if he or she was not wearing seat belts at the time of the accident.

- Resolved that drivers who do not strap safety belts around children under the age of 14 in their cars shall be guilty of contributing to the delinquency of a minor and fined $10 for each child and each infraction.

- Resolved that it shall be a misdemeanor punished by a $10 fine to transport an animal in a car unless it is suitably restrained at all times.

- Resolved that advertisers of automobiles may use as their "pitch" references to only the safety and economy of their cars.

- Resolved that all cars should be required to carry at all times a flashlight, flares, and a first aid kit.

- Resolved that new automobiles in showrooms and lots must display in a prominent place the safety features of the car.

- Resolved that the driver's license test must contain at least ten questions on automobile safety as it relates to automobile purchase, maintenance, and handling.

- Resolved that in order to obtain a driver's license, applicants must take a manual and written test on emergency repair and maintenance procedures, such as changing a tire, driving in inclement weather, adding water to the battery, adding water to the radiator, and using jumper cables to start a car.

- Resolved that motorcyclists should be required to wear crash helmets.

- Resolved that the government should require the installation of passive restraint systems (e.g., air bags) in all cars.

- Resolved that the government should provide financial incentive awards to states which enact compulsory safety belt usage laws.

In doing the research or preparing for the debates, groups should address issues such as:

1. Does the government have the right to regulate how people drive, what cars they can purchase, and how they maintain their cars?

2. Do people need to be "protected against themselves"?

3. Should it be the government's role to protect people against themselves, or should people simply have to live with the consequences of their own carelessness and laziness?

4. To what extent can driving safety be promoted through regulations and legislation? Are there some driving behaviors which can be regulated in this manner and some which cannot? Which ones?

5. Who is usually responsible for enforcing government regulations and laws?

6. What motivates these "enforcers" to do their job or to neglect it?

7. Can the government enforce enforcement?

8. Should the government promulgate regulations and pass laws which it cannot enforce effectively?

9. Should the government set safety standards for automobile manufacturers to follow?

10. Should the automobile industry have influence on what safety standards and laws the government establishes? How much influence?

11. Do or would government laws on certain types of driving behavior--e.g., wearing seat belts or for motorcyclists, crash helmets--infringe on individual freedom?

12. Is driving a privilege, not a right, and does the government therefore have the right to regulate driving behavior?

Research should be conducted by reading available literature (the *Reader's Guide to Periodical Literature* will be particularly helpful); interviewing appropriate members of the community and officials in governmental, private, and public agencies; and requesting and reading government reports on safety issues.

After completing the research, groups write reports on their topic, or debate the topic before the entire class. Class must then judge who won the debate.

Evaluation:

Students role play a talk show on which an "expert" on government and driving safety responds to the television talk show host's questions about government legislation designed to promote driving safety.

Variations and Supplementary Activities:

Students can research the history of key government efforts to regulate personal behavior which have been notable successes or failures, such as Prohibition, the safety belt interlock system, and "Blue Laws."

Students can, in particular, research Australia's compulsory seat belt law in terms of its provisions, enforcement, effect in promoting use, and results of increased use on the severity of accidents and number of fatalities. In the first year after nationwide enactment of the law, driver and passenger fatalities were reduced by 23 percent and serious injuries declined 30 percent--the largest single-year decrease in automobile deaths and serious injuries in all countries which kept such records. The number and severity of hospital cases involving crash-related injuries has been reduced significantly; for example, in Melbourne, the average number of hospital beds occupied by automobile accident victims has been reduced by 20 percent. Before the law was passed, an estimated 25 percent of the population used seat belts regularly; an estimated 80 percent in the cities and 60 percent in rural areas now wear them. There is a 10-dollar fine for drivers and passengers who do not wear their seat belts. (In Israel, there is a 165-dollar fine or month in jail.) Interestingly, while less than half the population approved of such a law before it was enacted, nearly 100 percent of Australians now support the law.

Students can research the law in the province of Ontario which now makes it compulsory to wear safety belts on those cars which have them. Results of the enforcement of this law are just beginning to be available now.

Students can visit a traffic court and afterwards discuss the types of traffic cases brought and dispositions. Students can discuss whether they think the penalties will deter drivers convicted of traffic offenses from further infraction.

PUBLIC ATTITUDES ON GOVERNMENT ACTIONS TO PROMOTE AUTOMOBILE DRIVING SAFETY*

Vehicle Safety

General. Consumers clearly believe that the Department of Transportation should increase safety standards for vehicles, continually check defects in automobile design, and make safety standards more uniform. They believe that there should be better automobile design as well as better response by manufacturers to automobile defects. They also support increased safety standards for foreign automobiles. Consumers also believe that the Federal government should exert pressure on the states to regulate the safety of cars offered for resale. Some concern was expressed that the automobile manufacturers were not making public or taking advantage of all new safety inventions, particularly those which are promoted by private individuals. There were several suggestions for a Federal agency, such as NHTSA, to evaluate safety inventions proposed by private individuals.

Tires. Some consumers believe that there is confusion concerning tire inflation specifications. They cite differences between the manufacturer's and local dealer's specifications. Consumers are also concerned about exaggerated and fraudulent claims by tire manufacturers and believe that the government should establish tire quality standards and publicize the information.

Standards. Consumers clearly want more and improved safety standards with tighter regulation and enforcement by the Federal government. By a slightly more than 2 to 1 margin, they believe there is a need for manufacturer performance specifications and standards in such areas as driver visibility and structure of the vehicle and bumpers. As expressed by one consumer at the hearings at Notre Dame University in South Bend, Indiana, "The best example is DOT regulations on tires. Before DOT had any regulations on tires, they were bad and unsafe, but now the manufacturers produce a superior product." There are those consumers who believe that there are now too many standards, that in most cases they are not needed and that these standards increase the cost of the vehicle. Consumers also strongly believe that there is a necessity for strict and uniform promulgation and enforcement of safety laws and standards. This includes traffic laws, laws involving motor vehicle inspection, minimum driver license standards, driver education and driver testing, drunken driving, and highway signs. They believe that drivers frequently cross state lines in today's society so that all of these laws and standards should be uniform.

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*Taken from *The Voice of the Transportation Consumer: Executive Summary*. U.S. Department of Transportation (Washington, D.C.: 1975). Volume reports on consumer views as expressed at 54 public hearings conducted by DOT, Office of Consumer Affairs, across the country between 1971 and 1974 and replies to questionnaires distributed at those hearings.

Safety Belts. Both support and opposition to mandatory use of safety belts was expressed throughout the hearings, with a slight preference for their mandatory use. Opposition was clearly expressed to the use of air bags and motorcycle helmets. Most of the opposition to mandatory use of safety belts centered upon what the consumers considered their poor design, the discomfort produced by safety belts, and the danger, in some cases, of their use. Many believed that the use of safety belts should be a personal choice, and not mandatory. Those who supported the use of safety belts believe they will help to provide safety for the driver, and in response to questionnaires, support was expressed for their use in buses, school buses, and taxis.

Child Restraints. Consumers, particularly in Rochester, expressed concern that DOT standards for the manufacture of child restraints were not sufficiently enforced or publicized. They stated that, based upon a survey by Consumer Associates of New York, both retailers and consumers are unaware of Regulations 213 and 209. Support was also expressed for child restraints to be available in rental automobiles.

Automobile Inspection

Although not a frequent suggestion, consumers favored, as a means of reducing traffic accidents, uniform motor vehicle inspection laws throughout the United States. A minority, particularly students at the university hearings, believe that they should be administered by the Federal government, but most prefer state administration. They also want stricter standards and enforcement of motor vehicle inspection by DOT of new automobiles on the assembly lines of the manufacturers similar to the inspection of military vehicles and weapons systems made by the Department of Defense at the manufacturer's plant.

Driver Education/Training and Licensing

Although concerned about the safety of vehicles, many consumers believe that accidents are caused primarily by poor driving, a result of inadequate driver training and testing. For the most part, they support national or Federal uniform minimum testing standards for drivers throughout the United States. Some believe that programs for administering these standards should be under the Federal government, but most believe that driver testing, training, and education should be administered by the states with Federal guidelines. Consumers strongly support improved and more comprehensive driver training and education, including defensive driving training, reflex training, and first aid. They believe that driver education and training should be done primarily in the schools, although there is more support for state highway or motor vehicle departments to conduct this training. Some believe that broad programs in transportation education should be stimulated by the U.S. Department of Transportation, and that Federal funding should be made available for them. There was also strong support expressed for periodic written and road tests and for physical examinations at intervals depending on the driver's age and health.

Law Enforcement

Consistent with their belief that drivers and poor driving cause most accidents, consumers feel that strict traffic laws, more strictly enforced, will go a long way toward reducing accidents. They want uniform traffic laws, particularly those setting penalties for drunken driving and, by an overwhelming margin, advocate very stiff penalties for drunken driving, including mandatory jail sentences. They also believe there should be standardized procedures for dealing with traffic law violators, including the method of determining blood alcohol content, and feel that there should be more national publicity of the dangers of drunken driving. Some support was voiced for legislation reducing speed limits throughout the nation as a means of reducing traffic accidents. Even uniform license plates were suggested.

ACTIVITY #42

Mini-unit Topic: Researching Transportation Safety

Approximate Class Time: 2-4 periods plus out-of-class time

Capsule Activity Description: Students participate in a hearing on highway construction or other issue related to transportation safety.

Goal:

To understand the political process through which decisions are made on matters that are of public concern (such as safety).

Concepts Treated:

- A public hearing is an opportunity for various sides of a question to be heard.
- Decisions are usually made not during the hearing but later.
- A good public hearing provides the basis for reasoned decisions.
- Decisions should be based on facts, not on the vigor with which one side presents its case.
- The decision-making process is political, considerations of various kinds are traded off against one another.

ACTIVITY

A small group of students researches the scheduling of public hearings on highway construction and automobile safety, plans a position statement it would like to present, and participates in the hearing.

To learn about local hearings on issues related to transportation safety, students can consult announcements in local newspapers; local agencies responsible for safety, consumer affairs, or transportation planning; state highway agencies; mass transportation agencies; regional offices of the United States Department of Transportation; and local citizens' groups involved with safety issues; and the reading at the end of this activity.

After learning what hearings are being held and when, the group decides which hearing to attend, becomes informed about what issues will be dealt with, and decides what its position should be on those issues. The group then decides what it must do to prepare for the hearing, what to do at the hearing, and what follow-up actions to take after the hearing. Suggestions for executing these tasks are provided on the following pages.

After the hearing, the group analyzes the results, particularly in terms of the impact their efforts had or may have on the final decisions made about the hearing issues. The group presents their results to the class, responding to questions from the class and teacher.

Evaluation:

Students in small groups write a brief "Citizens' Guide to Public Hearings" that discusses how to learn about and participate in hearings that involve automobile safety. Guide can be left in libraries for use by community residents.

Variations and Supplementary Activities:

Students can plan what they should do at the hearing without actually attending the hearing.

Several small groups can participate in the activity, each advocating different positions or the same position at the hearing.

Students can role play a hearing.

The reading on the following pages gives some hints about how to prepare for a public hearing, what to do at a hearing, and what to do afterwards. Although prepared specifically for hearings dealing with an environmental issue (clean air), the suggestions are completely applicable to a hearing about safety issues (or any other issue of public interest).

Public Hearings*

Another way to communicate with the public is to testify at public hearings. Your objectives should be two-fold: (1) to get your views before the control agency or legislative body holding the hearing; and (2) to air your views through the press and broadcast media.

The following suggestions are based on the experiences of many citizen organizations that have been through the earlier stages of the fight for clean air. Your group may be one of them, but you may, nevertheless, find these suggestions helpful.

Before the Hearing

1. Prepare a typewritten statement and make copies.

2. Prepare a press release and deliver it at least the day before the hearing, with a copy of your statement. Be sure both the release and the statement are marked "Advance Copy--Not For Release Until..." (Insert date and time when you expect to present the statement.)

3. If possible, deliver the release and statement to your press contacts personally. If you can't do so, call and tell them the release and statement are on the way. Don't waste reporters' time discussing or reading the release or statement on the phone unless they ask you to.

This advance press work does several things: it reminds the press that the hearing is coming up; it shows your press contacts that you've thought of them, even though they know you want coverage; and, if they cannot cover the hearing, at least they have your statement.

At the Hearing

1. Have a prepared typewritten statement, with enough copies for each member of the committee or board or commission conducting the hearing, plus extras for their files, and have more copies for the press along with your press release.

2. Be brief. Speak no more than four or five minutes, but ask to have your full statement included in the hearing record.

3. Begin with your name, address, title or group affiliation, and cite other groups, if any, that support your position and have asked you to say so.

4. Tell why you support, or oppose, the subject under consideration. Give facts to support your position. Don't make accusations you cannot support.

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*_Clean Air. It's Up to You, Too._ Office of Public Affairs, U.S. Environmental Protection Agency, Waterside Mall, Washington, D.C. 20460. It should be noted that citizens need to be alert--by reading newspapers and listening to the radio--to notices that a hearing is going to be held.

5. If appropriate, explain how the public interest is affected, who will benefit and how much it will cost.

6. If your group has several spokesmen, make sure to avoid repetition unless emphasis is desired. Have each speaker cover a different point, or approach the problem from a different aspect.

7. Speak clearly--loudly enough tc be heard, slowly enough to be understood, but quickly enough to keep the listeners' attention.

8. Be prepared to answer questions--to explain your position, to explain the purpose of your group, to explain how your group's position was reached (executive board vote, membership meeting vote, mail referendum, etc.). If you don't know the answer to a question, say so, and offer to try to get the answer and send it in for the record. On rare occasions, a committee or board member may be hostile and attempt to rattle, confuse, irritate or intimidate you. Don't let yourself get confused, angry, or nasty. Keep your cool.

9. Try to have as many supporters as possible attend the hearing. Casually mention their presence in your opening comments. Some call this "packing a hearing." Others call it "showing strength and support." Numbers reinforce your stand. An indication of support can sway legislators as well as public opinion.

10. Listen carefully to other statements presented, especially by the opposition. Make note of factual errors or new ideas or proposals, for you may be asked to comment on what other witnesses say. If so, don't attack the opposition or make personal remarks.

11. Respect the right of others to disagree with you. Do not applaud or show disapproval of any speaker.

12. If you have written statements of community leaders, other organizations, etc., who support your position but could not attend the hearing, ask that the statements be included in the hearing record.

13. Thank the committee for giving you the opportunity to testify.

After the Hearing

1. Promptly prepare and submit answers to any questions you were asked but could not answer at the hearing. If you think any statements made by the opposition were factually incorrect or need rebuttal, prepare and submit a supplementary statement for the record. But don't rehash what you said in your original statement.

2. If your press contacts wrote or broadcast stories containing your views, phone them and thank them for the coverage.

3. Don't complain to the press if your views weren't included in their coverage or if you think the coverage was bad or that you were misquoted.

4. A few days after the hearing, send a letter to the newspaper editor for publication referring to the hearing and pointing out what if anything, the public can do to help.

5. Let your own members know what happened at the hearing through your organization's newsletter or by a special letter to all members and include copies of press clippings, if any.

ACTIVITY #43

Mini-unit Topic: Researching Transportation Safety

Approximate Class Time: 1-1½ periods

Capsule Activity Description: Students examine official (Coast Guard) tables on boating accidents and interpret them, making use of graphs, charts, and written explanations.

Goal:

To understand from statistical evidence what are the most frequent kinds and causes of boating accidents.

Concepts Treated:

- Most boating accidents are caused by people.
- Most boating accidents occur when the water is calm and the weather is clear.
- More accidents happen on lakes than in the ocean.
- Collisions are the most common accident in boating.
- Capsizing causes more deaths than any other kind of accident.

ACTIVITY

Give the class tables from the official publication *Boating Statistics*, published annually by the Coast Guard. Tables from the 1974 publication are presented on Spirit Master #11, #12, and #13. Either singly, or in groups, students then examine the tables and write down their conclusions about what they show. The conclusions may be in the form of a paragraph or two of writing, or may consist of graphs and charts. Most likely, both writing and charts will be needed.

The following material should show up in the students' reports.

From 1970 to 1973, the total number of accidents went up each year; in 1974 it went down. A graph might be employed to show the *rate* of increase and decrease. Students may want to investigate whether this trend was true for all of the individual states, as well as for the country as a whole. A useful exercise might be to draw a graph for

the total number of accidents (by year) and then to draw lines that show the number of accidents (by year) for the states that had the most accidents: California, Florida, New York, Michigan, Texas, and perhaps a few others. Also included might be the homes state of the students, if it is not one of the ones otherwise listed. In most cases, but not all, 1974 showed a decrease in accidents.

The total number of accidents can then be further investigated to see what kind of accident most frequently occurred and which kind was the most serious (i.e., resulted in the most fatalities or injuries). Of the 5104 accidents reported in 1974, by far the largest number (1500) involved collision with another vessel. Capsizing was the second most common accident (778). Almost tied for third place were fires or explosions of fuel (366) and falls overboard (362). Also notable is the fact that collisions did not go down in 1974.

More vessels were involved in collisions than in any other accidents; the total number of vessels involved in 1974 (2845) was just slightly less than the number involved in 1973 (2853). As far as results of accidents go, collisions were not as serious as some other kinds of accidents: More fatalities were caused by capsizing than any other kind of accident; the next most likely cause of death was falling overboard. In injuries, collisions again lead as the cause, but most property damage is caused by fires or explosions of fuel.

The table relating weather and water conditions has some interesting information: More accidents happened on nontidal waters (i.e., lakes and ponds) than elsewhere; most accidents happened when the water was calm, not when it was rough, and when the weather was clear rather than cloudy. (A possible interpretation might be that in bad weather and rough water boaters are less likely to be out and those who are on the water probably exercise greater care than at other times.)

ASSESSMENT ACTIVITIES

Three activities are included in this group. Activity #44 may be used to ascertain students' interests and concerns about transportation safety. You may wish to use it at the beginning of the course to find out what your students really want to know about in this area.

Activity #45 should be used after the course has been completed. It asks a series of questions designed to discover whether in the students' eyes the objectives of the course have been met.

Activity #46 consists of a total of 48 essay questions, which ask students about various topics treated in the mini-units. You will want to use as many or as few as are suitable to your students. Of course, you will want only to use those questions dealing with mini-unit topics that your class has covered. These questions are merely suggestions; you may very well prefer to make up your own questions in order to evaluate your students' progress.

ASSESSMENT ACTIVITIES LESSON PLAN

Activity #	*Activities*	*Class Time*
44	DESCRIPTION: Students answer questions about their interests and concerns in the matter of transportation safety. GOAL: To assess students interests in, and concerns with, transportation safety.	½-1 period
45	DESCRIPTION: Students answer questions about the course. GOAL: To learn whether course or unit objectives have been met.	½-1 period
46	DESCRIPTION: Students answer questions on transportation safety. GOAL: To evaluate student learning.	½-1 period

Total Class Time: 1½-3 periods.

ACTIVITY #44

Mini-unit Topic: Assessing Interest in and Knowledge of Transportation Safety

Approximate Class Time: ½-1 period

Capsule Activity Description: Students answer questions about their interests and concerns in the matter of transportation safety.

Goal:

To assess students' interests in, and concerns with, transportation safety.

ACTIVITY

Students answer questions designed to reveal their concerns about transportation safety. Sample questions appear on the following pages. You may wish to preapre other questions. Attitude tests should be anonymously answered to allow students to feel free to express their real feelings. Students should be told in advance that there are no right or wrong answers.

Variation and Supplementary Activity:

You can ask students to write anonymous answers to questions designed to reveal their concerns about transportation safety. Sample questions can include

1. What personal safety problems have you or your friends experienced while driving, walking, boating, etc.? What, if anything, did you or they do about these dangers?

2. What, if anything, are you concerned to learn about how to avoid transportation hazards? Be specific.

3. Mention briefly some of the different feelings some people you know have toward safe driving. Are you interested in finding out what caused such attitudes?

1. Do you have any problems with any of the following travel issues? (Check all that apply.)

	No Problems	Some Problems	Many Problems
Wearing seat belts			
Getting someone else to wear seat belts			
Riding with dangerous drivers			
Unsafe automobiles			
Unsafe boats			
Unsafe roads and highways			
Safe walking			
Pedestrian facilities (sidewalks, crosswalks, "Walk-Don't Walk" signs)			
Walking to school			
Boating			
Getting an ambulance			
Getting police cars to come quickly			
Knowing when to call an ambulance			
Railroad crossings			
Playing on railroad tracks & in railroad yards			
Bus drivers			
Taxi drivers			
Airplane flying			
Dune buggies			
Campers, trailers			
Other			

2. The best way(s) to solve these problems is (check all that you agree with):

Most of them cannot be solved ☐

By passing laws to make people drive safely ☐

By building safer cars, boats ☐

By educating the public to be careful ☐

By getting more salespersons and mechanics who are honest ☐

By building better roads, sidewalks ☐

Other (specify):

_____ ☐

_____ ☐

_____ ☐

3. A unit on transportation safety could help me most if it:

Dealt with the following specific safety topics (specify):

_____

_____

_____

_____

Let me study what I want, but helped me to do so by (specify):

_____

_____

_____

_____

Used the following teaching methods (check all that apply):

Art __

Audiovisual __

Debates __

Discussions:

  small group __

  class __

Field trips __

Field work games __

Independent study __

Interviews __

Lectures __

Peer teaching __

Polls __

Reading __

Research __

Role plays __

Volunteer work __

Writing __

ACTIVITY #45

Mini-unit Topic: Assessing Interest in and Knowledge of Transportation Safety

Approximate Class Time: ½-1 period

Capsule Activity Description: Students answer questions about the course.

Goal:
To learn whether course or unit objectives have been met.

ACTIVITY

This activity should come after one or several mini-units on transportation safety have been completed.

Students write responses to questions designed to help reveal to them and to the teacher whether the course objectives were achieved and, insofar as they were not, how they can be achieved in the future. Answers should be anonymous.

Samples questions appear on the following page.

After answering questions, the class can discuss in small groups or as a class the value of the course and how to improve it based on the students' written responses.

Course Evaluation Questions for Students

1. What did you gain from this course? Check as many or few of the following as apply:

   ____ Only a review of well-known facts

   ____ A few new useful facts

   ____ Much new useful information

   ____ Better understanding of (mini-unit topic(s))

   ____ Desire to go more deeply into study of (mini-unit topic(s))

   ____ Some new and important attitudes toward transportation safety

   ____ Changes in my personal travel behavior or my reactions to other people travel behavior

   ____ Other (explain briefly)

2. From which part of the study do you feel you learned well?

   ____ Preparation of homework assignments

   ____ Individual reading

   ____ Oral reports

   ____ Written reports

   ____ Lectures

   ____ Role plays

   ____ Games

   ____ Individuals projects

   ____ Guest speakers

   ____ Debates

   ____ Small group discussions

   ____ Class discussions

____ Field trips

____ Audiovisual aids

____ Other activities--list

3. What is your opinion concerning the amount of time spent in this study?

_____ Too much _____ Too little _____About right

4. Which audiovisual aids were of most value?

5. From which books and pamphlets did you learn the most?

6. From which games did you learn the most?

7. From which role plays did you learn the most?

8. What questions or topics had you hoped would be included in the study but were not?

9. What suggestions do you have for improving the course?

10. Do you feel that there was unnecessary repetition in material covered in this class and material covered in another class or classes? If so, what material?

11. What do you think are the greatest needs in transportation safety?

12. After having considered very carefully what you have learned during this course, have you changed your mind concerning your personal use of vehicles and transportation facilities? If so, how?

ACTIVITY #46

Mini-unit Topic: Assessing Interest in and Knowledge of Transportation Safety

Approximate Class Time: ½-1 period

Capsule Activity Description: Students answer questions on transportation safety.

Goal:
To evaluate student learning.

ACTIVITY

A series of questions on various aspects of transportation safety appears on the next pages. You will want to select and use those questions which treat aspects of transportation safety that have been covered in the mini-units which you and your students have studied.

You can also have the students develop their own questions either individually or in small groups.

Each activity in the mini-units has its own evaluation built into the behavioral objective which precedes the activity description. You can use the following questions to supplement (or replace) those evaluation methods.

1. Many people drive dangerously even when they know what they are doing is unsafe. What are some of the reasons people continue to do unsafe things despite the obvious dangers?

2. Given the fact that many people continue to drive dangerously even though they know that what they are doing is unsafe, are there ways these people can be encouraged to drive safely?

3. What are some good methods by which to cope with pressures from friends who drive dangerously?

4. What are the common driver habits which make driving dangerous--habits which have nothing to do with driving skills?

5. Should passengers riding in cars driven by someone who is driving dangerously inform the driver of what he or she is doing and ask

him or her to drive safely? Why or why not? Give some examples of when you feel a passenger should complain and when he or she should not.

6. Should drivers of cars with passengers who are making it difficult for them to drive safely ask such passengers to stop engaging in distracting or otherwise dangerous behavior? Why or why not? Give some examples of when you feel a driver should complain to passengers and when he or she should not.

7. What are the common reasons people give for not wearing seat belts? Which, if any, of these reasons are good ones and why? Which, if any, are bad ones and why?

8. If more people wore seat belts, what would the results be in terms of the number and type of accidents and deaths due to automobile crashes? How would these effects relate to seat belt use?

9. Should people encourage each other to use seat belts? Why or why not?

10. How can people encourage other people to use seat belts?

11. What specific effects can alcohol have on a person's ability to drive safely?

12. What is "blood alcohol concentration"? How is it tested?

13. Approximately how many people are killed every day in all types of traffic accidents? With how many of these deaths do social drinkers who have been drinking play a part? How many of these accidents involve problem drinkers?

14. What would you do and why in any two of the following situations:

    (a) Your best friend is about to drive with a drunk driver.
    (b) You are about to drive with a drunk driver.
    (c) You are already riding with a drunk driver.
    (d) You have just caught your son or daughter drinking and then driving.

15. Do certain kinds of people drive more safely than others--for example, women? Do some groups drive more dangerously--for example, teenagers? If so, what might explain these differences?

16. What considerations should an automobile purchaser take into account in order to buy the safest possible car?

17. What special considerations does the purchaser of a secondhand car need to consider in order to buy a safe automobile?

18. To what extent is safety emphasized in automobile advertisements? What accounts for its emphasis or lack of emphasis?

19. When people buy automobiles, what are some of the reasons they have for what car they purchase which have nothing to do with safety? Which, if any, of these reasons can lead people to buy cars which are not as safe as some other cars?

20. What questions should an automobile purchaser ask car salespersons about the safety record and features of the automobile(s) they are considering buying?

21. If you had a young child, how would you teach him or her to be a good pedestrian?

22. What are the best methods for coping with pressures from friends to walk unsafely?

23. Discuss what you think is the one most important quality or skill needed to be a good pedestrian and why.

24. Using your community or neignborhood as an example, describe good or bad pedestrian facilities and what can be done to make them better.

25. Why is it important to maintain a boat properly? Why does good maintenance contribute to safety?

26. You are in command of a motorboat, with two passengers. Suddenly, one of them falls overboard. What do you do?

27. You are in command of a sailboat, with two passengers. Suddenly, one of them falls overboard. What do you do?

28. Describe what the Coast Guard Auxiliary is and what its members do to promote boating safety.

29. What actions can citizens take which will facilitate the provision of emergency care by operators of emergency vehicles?

30. Give an example of an emergency call which should be placed to a police station, one to a fire station, and one to an ambulance company. Why should each call be made to that particular source of emergency help?

31. How can drivers of automobiles assist drivers of emergency vehicles?

32. What emergency vehicle service do citizens contact when they want to be sure of getting a quick response? When should this source of help be contacted and when should a different source of help be contacted?

33. To what extent are ambulance drivers in most communities trained to provide emergency care?

34. Discuss the advantages and dangers when emergency vehicles speed to and from the scene of an emergency.

35. What safety measures should people keep in mind when they consider buying a recreational vehicle? Do these considerations differ from those safety considerations purchasers of automobiles should keep in mind?

36. You are teaching your son or daughter how to ride a bicycle. You know that he (she) will not be able to remember more than two or three safety rules at any one time.

    (a) Which two or three safety rules will you teach first?
    (b) Why will you teach those first?

37. Taking care of a bicycle is useful because it makes the bike last longer. What things can you do in taking care of a bike that will also make it safer to ride?

38. What are the special dangers related to using snowmobiles, minibikes, and dunebuggies?

39. What are the major safety regulations passengers should follow when flying on an airplane? Which of these regulations are announced by flight attendants?

40. What safety precautions can passengers take when riding on buses?

41. What safety precautions should people take when walking or driving across railway crossings? What precautions should they take in railway stations? on passenger trains?

42. What regulatory agency or agencies are responsible for regulating airplane safety? What rules have they made? How do they enforce them? Are there safety measures which they should promote or enforce which they have not as yet required airlines to follow?

43. What are the dangers and advantages of hitchhiking?

44. Should the government regulate how people drive, purchase, and maintain their cars? Why?

45. Should the government require the wearing of seat belts? Why?

46. If the government required the wearing of seat belts, would most citizens obey the law? Why?

47. What has Ontario's experience with seat belt legislation been? What might the results be in the United States if similar legislation were passed here? Why?

48. Should states require semiannual or annual automobile inspections? Why?

BIBLIOGRAPHY

BIBLIOGRAPHY

The Bibliography section is divided into five subsections, one each for Automobile Safety, Pedestrians, Boating, Emergency Vehicles, and Other Vehicles.

Within each of these five categories the individual bibliographical entries are divided into

1. Teacher materials
2. Student materials
3. Audiovisual materials

The individual entries in the teacher, student, and audiovisual sections are presented in the following format:

	Title of Work, author, date of publication. Number of pages or list of materials. Price.
Type of Material	Description of material with evaluation of material's quality (except for audiovisual materials and supplementary materials) and relevance for transportation consumer education.
	Source from which material may be obtained.*

It should be kept in mind that the inclusion of a bibliography item is an estimation of the material's quality and relevance.** As such, the absence of a teaching material does not per se indicate the material is poor. It may be excellent but simply not very relevant.

Following the teacher, student, and audiovisual materials are a list of readings for teachers by which to learn the necessary background to teach about transportation safety and a list of relevant periodicals for use by teachers and students alike.

At the end of the Bibliography is a list of government agencies which can be contacted for further information about transportation safety.

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*People who order materials from the Government Printing Office (U.S. Superintendent of Documents) should allow ten weeks for delivery.

**A complete discussion of the criteria used to evaluate the materials may be found at the end of the Bibliography.

AUTOMOBILE SAFETY

Teacher Materials

Traffic Safety, 1973, 1974. Two volumes. 60 pages each, plus appendices. Free.

Book — Paperbound report on the activities of the National Highway Traffic Safety Administration for 1973 in the areas of seat belts, experimental safety vehicles, accident studies, defects investigations, motor vehicle safety standards, and many other automobile safety areas.

National Highway Traffic Safety Administration
U.S. Department of Transportation
400 7th and D Streets
Washington, D.C. 20590

Selected Youth Safety Resources, 1968. 34 pages. Free.

Catalogue — Annotated but not evaluated list of written and audiovisual materials on a variety of safety topics, including automobile safety.

National Safety Council
426 North Michigan Avenue
Chicago, Illinois 60611

National Safety Council Catalogue. 85 pages. Free.

Catalogue — Comprehensive catalogue on all aspects of safety, including driver education and traffic safety. Included are listings of booklets, manuals, films, filmstrips, and posters.

National Safety Council
444 N. Michigan Avenue
Chicago, Illinois 60611

Physics and Automobile Safety Belts, 1972. 109 pages. $1.50.

Textbook — Guide that presents mathematics and physics problems about safety belt use. Unusual guide in that it attempts to teach about a social issue through the use of math and physics. Booklet is intended to serve as a supplement to a standard physics course. Material is divided into sections according to major physical concepts--velocity, acceleration, momentum, etc.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Safety Belt Instructional Package for Driver Education, 1972. Four pamphlets, 8, 13, 35 and 25 pages. Free, 15¢, 20¢, 25¢.

Guide

Four factual presentations about seat belt use and teaching about their use. Designed for use in driver education classes, but could be used in other settings. Useful factual information for teachers and students, but classroom approach is not exciting. Pamphlets are: (1) overview on teaching about safety belt use (*Safety Belts: A Recommendation to Driver Educators)*; (2) an *Instructor Guide* with suggested classroom activities in very brief form, objectives and a film list; (3) an *Automobile Safety Belt Fact Book* that treats important issues such as motivating factors in safety-belt usage and selling the safety-belt habit; also contains good bibliography; and (4) a *Safety Belt Instruction Booklet* that is a brief and unimaginative programmed instruction text.

Department of Transportation
National Highway Traffic Safety Administration
400 7th Street, S.W.
Washington, D.C. 20590

Alcohol and Alcohol Safety, 1972. (9-12: Vol. 1: 307 pages; Vol 2: 243 activities.) $12.50.

Guide

Comprehensive curriculum manuals on all aspects of alcohol use, with considerable attention paid to drinking and driving. The set has two volumes, one a curriculum manual, the other classroom activities. The activities are detailed and constitute the heart of the curriculum. They are creative and designed to achieve behavioral objectives in this highly affective field. An extensive bibliography on alcohol and traffic safety is provided in each set, including classroom materials and teacher guides. Senior high materials can be used for adult education.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Order No's: 5003-00087, 5003-00088: Sr. High

How to Talk to Your Teenager about Drinking and Driving. (Order #515E)

Pamphlet Single copies of this pamphlet may be obtained free.

U.S. Department of Transportation
Consumer Information Center
Pueblo, Colorado 81007

To Buy a Car, 1969. Short story: 15 pages (bound separately); Teacher's guide: 10 pages. $1.00.

Guide Short story that forms the core of a unit on how to buy a car. Useful unit that is open ended: the story raises many questions about car purchasing that students can learn the answers to in a variety of ways. The accompanying teacher's guide suggests several follow-up activities, from role play to class discussions to field trips. There is also a supplemental thirty-minute film, "Challenges of Citizenship: Consumer Decision Making," that can be obtained from the publishers. Unit is oriented to the development of decision-making skills. Can be used by adults.

Lincoln Filene Center
Tufts University
Medford, Mass. 02115

Student Materials

You and Your Car, 1954. 15 pages. 25¢.

Pamphlet Useful as a very quick overview of car safety, including discussion of safety belts, rules of the road, highway signs, car safety check points, night driving and tire care. Somewhat offensive in its "Do this, don't do that" approach. Some students may find the heavy cartoon format condescending and/or childish. Part of a series of ten pamphlets on highway safety.

Channing L. Bete Company, Inc.
45 Federal Street
Greenfield, Massachusetts 01301

Your Next Accident and How to Avoid It, 1959. 15 pages. 25¢.

Pamphlet Useful as a very quick overview of car safety, including such topics as courteous driving, defensive driving, and car safety. Some students may find the heavy cartoon format condescending or childish. Part of a series of ten pamphlets

on highway traffic safety.

Channing L. Bete Company, Inc.
45 Federal Street
Greenfield, Massachusetts 01301

The New Look in Traffic Signs and Marking, 1972. 19 pages. 35¢

Pamphlet Sprightly, multicolored pamphlet describing motor vehicle, pedestrian, bicyclist, etc., signs, signals, and pavement markings. Profusely illustrated.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Stock Number 5001-0027

What Every Woman Should Know About Cars, 1969. 15 pages. 25¢.

Pamphlet Moralistically-phrased suggestions are offered to women drivers on their allegedly special needs and problems, such as driving with children, use of the glove compartment, emergency situations, accidents and driving alone at night. Some of the suggestions are of the male chauvinist variety, but pamphlet can be used as a stimulus to discussion on whether women have special driving needs and problems. Some students may find the heavy cartoon format condescending and/or childish. Part of a series of ten pamphlets on highway safety.

Channing L. Bete Company, Inc.
45 Federal Street
Greenfield, Massachusetts 01301

How to Deal with Motor Vehicle Emergencies (Order #505E)
Battery Hazards, Explosions and Jump Starting (Order #502E)
Safety Tips on Use of Headlights (Order #508E)
Studded Tires--What Every Motorist Should Know (Order #514E)
Winter Driving Tips (Order #509E)
Passenger Car Brakes (Fact Sheet) (Order #601E)

Pamphlet Single copies of all these pamphlets may be ordered free from

Consumer Information Center
Department of Transportation
Pueblo, Colorado 81007

Standards, 1972. 19 pages. Price not indicated.

Pamphlet List of Federal Motor Vehicle Safety Standards issued as of April 30, 1972 with brief descriptions of each.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Automobile Jacks.

Pamphlet Single copies of this pamphlet are available free from the

National Highway Traffic Safety Administration
Department of Transportation
Washington, D.C. 20590

Hold Everything! Why You Should Use Safety Belts, 1962. 15 pages. 25¢.

Pamphlet Brief, factual discussion of utility of seat belts. Some students may find the heavy cartoon format and injunctive approach condescending or childish. Part of a series of ten pamphlets on highway traffic safety.

Channing L. Bete Co., Inc.
45 Federal Street
Greenfield, Massachusetts 01301

Safety Belt Instructional Package for Driver Education, 1972. 8, 13, 35, and 25 pages. Free, 15¢, 20¢, 25¢.

Pamphlet Four pamphlets of facts about seat belt use and on teaching about their use. Designed for use in driver education classes, but can be used in other settings. Useful factual information for teachers and students, but classroom approach is not exciting. Pamphlets are (1) overview on teaching about safety belt use (*Safety Belts: A Recommendation to Driver Educators)*; (2) an *Instructor Guide*, with suggested classroom activities in very brief form, objectives, and a film list; (3) an *Automobile Safety Belt Fact Book* that treats important issues such as motivating factors in safety belt usage and selling the safety-belt habit; also contains a good bibliography; (4) a *Safety Belt Instructional Booklet* that is a bland programmed instructional text, very brief and not very imaginative.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Stock Nos. 5003-0068, 5003-0080, 5003-00077.

There are Lots of Safety Belt Myths...Why Not Consider the Truths? 1972. 6 pages. 10¢.

Flyer Quick overview of safety belt myths.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Stock No. 488/367/2058F

Seat Belts Save Lives Only If Used, 1968. 5 pages. Free.

Flyer Discussion of the importance of using seat belts.

American Automobile Association (AAA)
1712 G Street, N.W.
Washington, D.C. 20006
or local AAA chapter

What to Buy in Child Restraint Systems, 1971. 11 pages. 20¢.

Pamphlet Discussion, with illustrations and charts, of how to determine what type of children's restraint device to buy in terms of maximum safety. Discussion of child restraint harnesses included.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

ABC's of Drinking and Driving, 1971. 15 pages. 25¢.

Pamphlet Useful overview of the drinking-driving problem, crammed with facts and statistics, and presented graphically and with illustrations. Minor weakness: pamphlet warns of danger of loss of license as a result of DWI conviction and consequent inability to drive. In fact, few drunk drivers are convicted, few of those convicted lose their licenses, and most of those who do continue to drive anyway. In addition, some students may find cartoon format condescending and childish. Approach is not the "if you drink, don't drive" variety; it is the "know your limits" approach now advocated by the Federal and most state governments. Pamphlet is part of a series on highway traffic safety.

Channing L. Bete Co., Inc.
45 Federal Street
Greenfield, Massachusetts 01301

How to Keep the Life of the Party Alive.

Pamphlet Single copies of this pamphlet are available free.

National Highway Traffic Safety Administration
Office of Consumer and Public Affairs
Department of Transportation
Washington, D.C. 20590

Are We Letting the Social Drinker Off the Hook? 1971. 3 pages. Free.

Article Article by a judge who claims that social drinkers are the main drinking-driving problem. Article takes issue with the Department of Transportation's contention that problem drinkers are the major hazard of the highway. The author proposes strict enforcement of drinking-driving laws. Useful for stimulating discussion on who is responsible for alcohol related accidents and on what should be done about drinking drivers.

Preferred Risk Insurance Company
1111 Ashworth Road
West Des Moines, Iowa 50265

Alcohol and Highway Safety, 1969. 11 pages. Free.

Articles Compilation of reprints that discuss the difficulty of convicting drunk drivers. Very useful document for discussing the political and legal aspects of the enforcement of traffic safety laws--and, by analogy, of all transportation laws.

Allstate Insurance Company
Allstate Plaza
Northbrook, Illinois 60062

Stop the Drunk Driver, by Guy Halverson, 1970. 44 pages. $1.00.

Pamphlet Excellent discussion of role of alcohol in traffic accidents, as well as the political and social problems associated with controlling the drunk driver; for example, it does not hesitate to accuse the liquor industry of opposing promising legislation.

Christian Science Monitor
Christian Science Publishing Society
Christian Science Center
Boston, Massachusetts 02115

People Do Drink and Drive, 1973. 25 pages. $1.20.

Pamphlet Exposition for secondary school students on facts about alcohol and discussion of drinking/driving situations. Useful booklet that begins with factual information about alcohol and its effects on driving. Booklet ends with nine presentations of problematical situations involving drinking and driving for students to solve.

American Driver and Traffic Safety Education Association
(ADTSEA)
1201 16th Street, N.W.
Washington, D.C. 20036

Automobile Batteries, 1971. 13 pages. 40¢.

Pamphlet Useful ideas on how to purchase and care for automobile batteries.

General Services Administration
Federal Supply Service
Washington, D.C. 20405

Tires: Their Selection and Care, 1971. 28 pages. 65¢.

Pamphlet Useful suggestions for buying and maintaining automobile tires.

National Bureau of Standards
U.S. Department of Commerce
Washington, D.C.

Buying a Used Car, 1973. 11 pages. Free.

Pamphlet Tips on buying and financing a car. Practical suggestions are provided on pricing, inspecting the car, taking a road test, having a mechanical check-up, payment, examination of sales contract, and redress of grievances.

Oregon State University
Extension Service
Corvallis, Oregon
(Extension Circular 823)

To Buy or Not to Buy. 5 pages. Free.

Pamphlet Tips on how to decide which used car to buy. Excellent suggestions given for on-the-lot tests, driving tests, and mechanical tests a purchaser should perform on used (or new, for that matter) cars before buying. Tips are practical,

the type a mechanic would recommend. Checklist included is reproduced from *Consumer Reports*.

Division of Consumer Affairs
1100 Raymond Blvd.
Newark, New Jersey 07102

Car Buying Made Easier, 1974. 160 pages (45 devoted to car buying). Free.

Pamphlet Pamphlet produced by Ford Motor Company, providing tips for buying a car; second section describes Ford automobiles. Car buying tips are useful and extensive and do not seem to be watered down for the sake of sales.

Ford Motor Compan, Listens
P.O. Box 1974
The American Road
Dearborn, Michigan 48121

Common Sense in Buying a Safe Used Car, 1976. 19 pages. Single copies free.

Pamphlet Useful tips on what to look for, what to avoid, what tricks to be on the look-out for.

U.S. Department of Transportation
National Highway Traffic Safety Administration
Office of Public Affairs and Consumer Services
Washington, D.C. 20590

Consumer Protection Under the New Antitampering Odometer Law, July 1975. 4 pages. Single copies free.

Pamphlet What you are entitled to know about the mileage of a car you are buying and what you must disclose when you are selling your car.

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

Fuel Economy, Emissions, and Safety of Small and Large Cars.

Pamphlet Single copies are available free.

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

How to Buy a Car (no date). 24 pages. 25¢.

Pamphlet — Highly practical checklist of on-the-lot, driving, and mechanic shop tests that a potential used car purchaser should complete before buying a used car. Well illustrated with photographs.

Consumer Union
Education Services Division
256 Washington Street
Mount Vernon, New York 10550

Your Wheels--How to Keep Your Car Running. Chet Cunningham, 1973. 127 pages.

Book — How to make your car a better and safer vehicle.

G.P. Putnam's Sons
New York

Auto Mechanics, an Introduction and Guide. A. Edward Little. 1974. 115 pages.

Book — A basic explanation of how various parts of an automobile function.

Franklin Watts, Inc.
New York

Automotive Rust--Its Causes and Prevention. Single copies free. (Order #501E)

Pamphlet — U.S. Department of Transportation
Consumer Information Center
Pueblo, Colorado 81007

Audiovisual Materials

Instructor Guide, 1972. 2 pages. 15¢.

Bibliography — Instructor guide on safety belt use that has two pages describing fourteen relevant films. Annotated with sources for rental or purchase and length provided.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Stock No. 5003-00080

Fact and Fiction About Safety Belts, 1973. Color filmstrip, tape, script booklet. $10.00 (purchase).

Film-strip

Short filmstrip presentation designed to increase safety belt use by destroying seat belt myths.

General Services Administration
National Archives and Records Service
National Audiovisual Center
Washington, D.C. 20409

National Directory of Safety Films, 1971. 60 pages. $3.59.

Cata-logue

Capsule descriptions of safety films that can be rented from the National Safety Council; however, none are evaluated and many included are poor or mediocre. The reader must take pot luck and preview all films ordered before using with students.

National Safety Council
425 N. Michigan Avenue
Chicago, Illinois 60611

Traffic Safety Education Films (no date). 2 pages. Free.

Cata-logue

Annotated list of films on traffic safety, from freeway driving to alcohol-traffic safety.

Contact nearest American Automobile Association (AAA) office
or
AAA Foundation for Traffic Safety
1712 G Street, N.W.
Washington, D.C. 20005

General Motors Motion Pictures, 1973. 54 pages. Free.

Cata-logue

Annotated list of 16mm sound color motion pictures on various aspects of automobile use and safety. All films are loaned without charge.

General Motors Corporation
Public Relations Staff - Film Library
General Motors Building
Detroit, Michigan 48202

Driver Education Aids. Free.

Cata-logue

Annotated listing of films and filmstrips on automobile use and safety.

Ford Motor Company
Traffic Safety and Highway Improvement Department
The American Road
Dearborn, Michigan 48121

Films Available From the American Mutual Insurance Alliance and Its Member Companies (no date). 10 pages, 4 on transportation safety. Free.

Catalogue — List of films on various aspects of automobile safety including skids, roadside boobytraps, and small car crashes. Descriptions of films are provided along with information on where they can be obtained. Rentals are free.

American Mutual Insurance Alliance
Communications Department
20 North Wacker Drive
Chicago, Illinois 60606

A Mini-catalog of Outstanding Films for Driver Education and Traffic Safety (no date). 6 pages. Free.

Catalogue — List of 22 movies for rent or sale with brief descriptions of each. Topics range from night driving tactics to whiplash.

AIMS Instructional Media Services, Inc.
P.O. Box 1010
Hollywood, California 90028

A Short History. 6 min., color.

Film — Film, with cartoons and live action, that stresses that driving involves risk-taking decisions and then illustrates how the ability to judge and the reality of these risks is affected by alcohol.

Denver Alcohol Safety Action Program
1845 Sherman Street
Denver, Colorado 80203

The Decision Is Yours, 1972. 92 slides; test; audiotape; curriculum guide. $10 (purchase).

Filmstrip — Filmstrip on the hazards of drinking and driving that tries to present the facts and leave the decision of whether to drink and drive up to the viewer. Filmstrip is geared specifically to driver education classes. Slides are of drunk driving behavior and factual information about alcohol's physical and behavior effects. Places are provided in the filmstrip for stopping the audio and discussing the ideas

presented. However, the presentation does not in fact leave the decision up to the viewer but is loaded to elicit the obvious "don't drink and drive" decision.

National Audiovisual Center
General Services Administration (GSA)
Washington, D.C. 20409

Ladies and Gentlemen of the Jury. 16 mm, 27½ min., color.

Film

Film which shows, through a story, the problem drinker as a highway hazard and the public's failure to recognize the problem.

U.S. Department of Transportation
Office of Alcohol Countermeasures
Nassif Building
7th and D Streets, S.W.
Washington, D.C. 20590

DWI--Phoenix. 27 min., color.

Film

This documentary film shows how one city is finding a way to protect itself against drunk drivers via a compulsory-attendance traffic education course for drivers involved in accidents while intoxicated.

All orders must be placed through the local AAA Club. For the address of the local club, write the

AAA Foundation for Traffic Safety
734 Fifteenth Street, N.W.
Washington, D.C. 20005

The Bottle and the Throttle. 10 min., black and white.

Film

This film reveals the effects of drinking on driving. Statistics are used as well as a story about an accident involving teenagers.

Sid Davis Productions
1046 South Robertson Boulevard
Los Angeles, California 90035

How Much Is Too Much? 15 min., color.

Film

This film shows people determining for themselves how much is too much and records their actions at different levels of intoxication.

Wisconsin ASAP
University of Wisconsin
Institute of Governmental Affairs
311 State Street
Madison, Wisconsin 53703

Point Zero Sight. 30 min., black and white.

Film — Eight of Canada's foremost rally and racing drivers are subjected to exacting tests to determine the degree a given amount of alcohol in the blood can affect their skill and ability to react.

CTV Television Network, Ltd.
42 Charles Street
Toronto 5, Canada

The Drinking Driver. 27 min., color.

Film — This film presents basic elements needed for an effective community countermeasures program.

U.S. Department of Transportation
Office of Alcohol Countermeasures
Nassif Building
7th and D Street, S.W.
Washington, D.C. 20590

A New Look at the Old Sauce. Filmstrip, 35 mm, 17 min., record, color.

Film — Animated cartoon depicting history and effects of alcohol, drinking patterns, alcoholism, and drinking and driving.

Texas Commission on Alcoholism
809 Sam Houston State Office Building
Austin, Texas 78701

PEDESTRIAN SAFETY

Teacher Materials

Pedestrian Safety: Safety Education Data Sheet Number 10, (no date). 3 pages. 68¢ for 10 copies.

Pamphlet — Brief discussion of safety aspects of walking in traffic. Provides useful factual information but no classroom activities. Part of a series of data sheets on safety.

National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611
Stock No. 429.04-10

A New Look at Pedestrian Safety, 1975. 16 pp. Single copies free.

Pamphlet — Brief analysis of pedestrian accidents, countermeasures that may be taken, and national pedestrian needs.

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

Urban Pedestrian Accident Countermeasure Experimental Evaluation: Volume I: Behavioral Evaluation Studies, 1975. Grades K-adult. 107 pages. $4.25.

Study — Somewhat technical study of the extent to which nine pedestrian safety countermeasures effectively reduced pedestrian accidents. Considerable useful discussion on the causes of pedestrian accidents and how to prevent them.

National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22151

Student Materials

A-B-C's of Pedestrian Safety, 1969. 15 pages. 25¢.

Pamphlet — Discussion for drivers and pedestrians of pedestrian safety. Moralizes too much about what pedestrians and drivers should and shouldn't do. Topics discussed include intersections, night-time and bad weather, youthful and elderly pedestrians. Topics are covered very briefly in a heavy cartoon format that some students may find condescending or childish. Part of a series of ten pamphlets on highway safety.

Channing L. Bete, Co., Inc.
45 Federal Street
Greenfield, Massachusetts 01301

A New Look at Pedestrian Safety, 1975. 16 pp. Single copies free.

Pamphlet — Brief analysis of pedestrian accidents, countermeasures that may be taken, and national pedestrian needs.

U.S. Department of Transportation
National Highway Traffic Safety Administration
Washington, D.C. 20590

Audiovisual Materials

Transportation Safety Films. 2 pages. Free.

Catalogue — Annotated list of films on traffic safety, from freeway driving to pedestrians.

Contact nearest American Automobile Association (AAA) office
or
AAA Foundation for Traffic Safety
1712 G Streeet, N.W.
Washington, D.C. 20006

BOATING SAFETY

Teacher Materials

Better Boating: A Guide to Safety Afloat, 1973. 79 pages. 65¢.

Guide — Comprehensive guide on primarily motorboating covering types of boats, equipment, navigation, safety, and emergency measures. Well illustrated but completely factual approach. Suggested class activities are not detailed. Student booklets available, too.

Better Boating
Oudoor Empire Publishing, Inc.
511 Eastlake Avenue E.
Seattle, Washington 98109

Federal Requirements for Recreational Boats. Order # CG-290. Single copies free.

Pamphlet

U.S. Department of Transportation
U.S. Coast Guard
Washington, D.C. 20590

Student Materials

Personal Flotation Devices: Requirements for Recreational Boats, (no date). 3 pages. Free.

Flyer — Brief description of various types of what used to be called life preservers and are now called personal flotation devices (PFD). Useful for deciding which one(s) to purchase.

Department of Transportation
United States Coast Guard
(G-BBE-1)
Washington, D.C. 20590

This Is the Seal of Safety (Aux-204). Free.

Pamphlet — Description of U.S. Coast Guard Auxiliary. Contains both Auxiliary and Federal equipment standards.

Department of Transportation
United States Coast Guard
(G-BAU)
Washington, D.C. 20590

The Skipper's Course (CG-443), 85 pages. $1.50.

Pamphlet Self-instructional booklet on all aspects of boating safety and operation. Provides information and then "self-administering" questions ("quick quiz") after each section to test learning. Many of the issues covered deal with large pleasure craft, but problems that would affect rowboats, sailboats and canoes are also dealt with. Includes eleven cartoons.

Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

(Almost) Everything You Ever Wanted to Know About Boating... (CG-428), 1972. 24 pages. Free.

Pamphlet Humorous treatment of basic boating operation and safety, including limericks, witty sayings, cartoons, and quiz questions.

Department of Transportation
United States Coast Guard
(G-BEE-2)
Washington, D.C. 20590

Basic Canoeing, 1963. 63 pages. 50¢.

Pamphlet Useful discussion for beginners that deals with the evolution of the canoe, selecting a canoe, accessories, carrying and launching, boarding and debarking, paddling strokes, safety, care and repair, cartop transportation, and artificial respiration.

American Red Cross
17th and D Streets, N.W.
Washington, D.C. 20006
(or local chapter)

Canoeing Textbook, 1956. 445 pages. $1.75.

Textbook Comprehensive treatment of all areas of canoeing, including accessories, launching and boarding, paddling, rescue, racing, trips, and repairs.

American Red Cross
17th and D Streets, N.W.
Washington, D.C. 20006
(or local chapter)

Basic Sailing, 1966. 122 pages. 75¢.

Pamphlet Useful discussion that treats the fundamentals of sailing small craft. Topics discussed include sailboat designs, types, equipment, sails, basic racing rules, and rough weather sailing. Illustrated.

American Red Cross
17th and D Streets, N.W.
Washington, D.C. 20006
(or local chapter)

Basic Rowing, 1964. 80 pages. 50¢.

Pamphlet Booklet designed as a reference source for the American Red Cross rowing courses. Well illustrated, it gives basic information on rowing craft, types, materials, equipment, boarding and debarking, rowing, knot tying and use of lines, anchoring, towing, safety and rescue, boat care, and artificial respiration.

American Red Cross
17th and D Streets, N.W.
Washington, D.C. 20006
(or local chapter)

Basic Outboard Boating, 1964. 98 pages. 75¢.

Pamphlet Well-illustrated and useful discussion that deals with definition and classification of motorboats, boat selection, outboard rig, equipment requirements, rules of the road, the outboard motor, troubleshooting, fueling, starting, knot tying and use of lines, anchoring, piloting and navigational aids, safety and rescue, accident reporting, weather, and artificial respiration.

American Red Cross
17th and D Streets, N.W.
Washington, D.C. 20006
(or local chapter)

Principles of Safe Sailing, 1971. 123 pages. $3.95.

Book Large (8½" x 11") paperback volume provides detailed information on such topics as how to sail, weather problems, rough water, maintenance, and purchasing sails. Well illustrated.

Motor Boating and Sailing Books
The Hearst Corporation
959 Eighth Avenue
New York, New York 10019

Marine Communications for the Boating Public (CG-423), Single copies free.

Pamphlet Detailed information of what someone aboard a vessel in trouble or observing another vessel in difficulty should radio. Contains a tear-out Marine Emergency and Distress Information Sheet.

Department of Transportation
U.S. Coast Guard
Washington, D.C. 20590

A Pocket Guide for Visual Distress Signals (CG-152). 17 pages. Single copies free.

Pamphlet Useful discussion of how boat operators should signal for help in an emergency using hand signals, flags, and special equipment (flares, lights, and radios).

U.S. Department of Transportation
United States Coast Guard
Washington, D.C. 20590

Publications for Safe Navigation, 1973. 5 pages. Free.

Pamphlet Description of nautical charts and chart related publications, including prices and ordering sources.

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Survey
6501 Lafayette Avenue
Riverdale, Maryland 20849

Marine Weather Services, 1972. 5 pages. Free.

Pamphlet Description of sources for weather forecasts and warnings and marine weather services charts. Also included are weather display signals and weather rules for safe boating.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Coast Guard Official Recreational Boating Guide, 1971.
96 pages. 60¢.

Pamphlet Excellent, comprehensive guide to boating equipment, operating responsibilities, navigation aids, safety, and emergency procedures. Lists of Coast Guard District Offices and government publications are provided. Well illustrated. Primarily for the motor boater.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Stock Number 5012-0056

Federal Requirements for Recreational Boats. Order #CG-290.
Single copies free.

Pamphlet

U.S. Department of Transportation
U.S. Coast Guard
Washington, D.C. 20590

First Aid for the Boatman, Order #AUX 206. Single copies free.

Pamphlet

U.S. Department of Transportation
U.S. Coast Guard
Washington, D.C. 20590

Emergency Repairs Afloat (CG-151), 1973. 11 pages. Free.

Pamphlet A boatman's "pocket guide" to engine troubleshooting, emergency repairs, how to stay afloat, and recommended basic hand tools and spare parts.

Department of Transportation
United States Coast Guard (G-BBE-1)
Washington, D.C. 20590

Coast Guard Aids to Navigation (CG-193), 1972. 27 pages.

Pamphlet Detailed description of basic principles underlying the marking of coasts and waterways with lights, fog signals, radio beacons, and buoys. Well illustrated.

Department of Transportation
United States Coast Guard (G-CAS-2)
Washington, D.C. 20590

Audiovisual Materials

Search and Rescue: Pleasure Craft, 1969. 16 mm, 26 min., color. $88 (purchase); free rental.

Film — Movie that portrays search and rescue aspects of boating safety. Probably too technical or narrowly devoted to expensive pleasure craft to be useful in many classes. Defines the proper procedure to be followed by distressed vessels in obtaining search and rescue assistance.

Rental: Local Coast Guard District Office
Purchase: National Audiovisual Center (GSA)
Washington, D.C. 20409

Suldenly and Without Warning, 1971. 16 mm, 6 min., color. $25 (purchase); free rental.

Film — Movie on safety hazards of falling overboard. Probably the most useful aspect of boating safety in terms of the number of people for whom the problem may arise. Graphic action scenes depict the most common types of falls overboard from pleasure boats. Shows buoyant life-saving devices, their uses, and how to wear them properly.

Rental: Local Coast Guard District Office
Purchase: National Audiovisual Center (GSA)
Washington, D.C. 20409

Boating Safety - B: Courtesy Afloat, 1962. 16 mm, 16 min., color. $63 (purchase); free rental.

Film — Movie on safety for small boat operators. Film is designed for all boatmen, but particularly for those who operate less than 26-foot boats. Proper fueling, use of signalling devices, courteous and safe operation in swimming areas, and awareness of weather are discussed.

Rental: Local Coast Guard District Office
Purchase: National Audiovisual Center (GSA)
Washington, D.C. 20409

The SOS Course: An Introduction to Safe Boating. 69 pages of text, seven pages of instructions, 198 35-mm color slides. $28.50 (purchase).

Slides — A slide presentation on many aspects of boating safety. Approximately 2 hours in length. Designed to be used as a teaching device by an individual with little or no boating safety experience by employing the slide narrative contained in the SOS Course.

National Audiovisual Center (GSA)
Washington, D.C. 20409

What Now, Skipper? 1973. 16 mm, 20 min., color. Rental: free; purchase: $78.00.

Film — Through a combination of dramatic live demonstrations and colorful graphics, this film depicts the recommended procedures for selecting, maintaining and using marine fire extinguishers. This film is intended for use in familiarizing the boating public with the Federal requirements for fire extinguishers and their proper use on the pleasure boat. Humor and cartoon characters have been included in the film to maintain viewer interest.

Rental: U.S. Coast Guard District offfices;
Purchase: The Sales Branch
National Audiovisual Center (GSA)
Washington, D.C. 20409

Revolutionary Regulations, 1973. 16 mm, 18 and 3/4 min., color. Rental: free; purchase: $75.75.

Film — Explains new personal flotation device regulations that were effective 1 October 1973. Our hero falls asleep while studying the new regulations, and in an entertaining dream sequence, he and his wife wander through a colonial American setting. They meet several interesting characters who explain in detail the four types of PFD's, their performance characteristics, and the carriage requirements for recreational boats.

Rental: U.S. Coast Guard offices;
Purchase: Sales Branch
National Audiovisual Center (GSA)
Washington, D.C. 20409

EMERGENCY VEHICLES

Teacher Materials

None identified.

Student Materials

Highway Ambulance Service, 1969. 65¢.

Pamphlet Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Order No. TDs. 202:AM 7

Economics of Highway Emergency Ambulance Service, 1968. $3.00.

Report National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22151
Order No. PB-11-6541

Accidental Death and Disability: The Neglected Disease of Modern Society, 1970. 38 pages. Free.

Pamplet Commission on Emergency Medical Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

Helicopters in Emergency Medical Service: NHTSA Experience to Date, 1972. 27 pages. 40¢.

Pamphlet Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Order No. TD 8.2: H:36
Stock No. 5003-00112

Rescue from Air and in Space, Captain James C. Sparks, Jr. 155 pages.

Book A history of man's development of rescue operations in both air and space.

Mead Dodd & Co.
79 Madison Avenue
New York, New York 10016

Questions and Answers, Emergency Medical Services, 1973. 6 pages. Free.

Flyer U.S. Department of Transportation
Rescue and Emergency Medical Services Division
Washington, D.C. 20590

To Die or Not To Die - What Is Your Communities' Answer? Emergency Medical Services, 1973. Free.

Flyer U.S. Department of Transportation
Rescue and Emergency Medical Services Division
Washington, D.C. 20590

A Helicopter Ambulance Service - Do You Need It? Can You Justify It? Can You Afford It? 1973. 4 pages. Free.

Flyer U.S. Department of Transportation
Rescue and Emergency Medical Services Division
Washington, D.C. 20590

Audiovisual Materials

On The Scene (no date). 16 mm, 28 min., color. Free: 10-day loan; purchase: $125.00

Film Film on police use of helicopters with a 5-minute segment on emergency medical services.

Director
Public Relations
Bell Helicopter Co.
P.O. Box 482
Fort Worth, Texas 76101

OTHER VEHICLES

Teacher Materials

Pedal On! Bicycle Consumer Education Activities and Resource Matierials, 1976. $19.50.

Guide — Comprehensive set of classroom activities and supporting materials for the teacher on all aspects of bicycles, but major section treats bicycle safety. Part of the U.S. Department of Transportation series of curriculum guides on transportation consumer education of which this volume on transportation safety is also one.

Abt Associates Inc.
55 Wheeler Street
Cambridge, Mass. 02138

Bicycle Safety Program Aids (no date). 10 pamphlets and three posters. 11¢.

Packet — Folder of materials on bicycle safety and use. Included also are a pamphlet to parents on buying their children a bicycle, the results of an AAA survey on the nature and causes of bicycle accidents, a bicycle skill tests pamphlet (well illustrated and described), and a bicycle inspection check list.

The American Automobile Association
1712 G Street N.W.
Washington, D.C. 20006
Stock Number 3289

Student Materials

Trailer Pointers and Driving Hints for Passenger Car Owners, 1964. 28 pages. Free.

Pamphlet — Informative discussion of how to drive with a trailer and how to maintain them in safe operating condition. Well illustrated.

American Automobile Association (AAA)
Traffic Engineering and Safety Department
1712 G Street, N.W.
Washington, D.C. 20006
(or local AAA club)

Minibike Background Information, 1971. 6 pages. Free.

Flyer — Useful discussion of minibikes primarily in terms of safety but also in terms of sales, purchase considerations, and design specifications.

American Automobile Association (AAA)
Traffic Engineering and Safety Department
1712 G Street, N.W.
Washington, D.C. 20006
(or local AAA club)

Mini-bike Guide.

Periodical — Magazine which treats safety and other issues related to purchase and use of minibikes.

Mini-Bike Guide
P.O. Box 1880
Huntington Beach, California

Snowmobiles: Safety Education Data Sheet Number 100 (no date). 4 pages. 68¢ for 10 copies.

Pamphlet — Brief overview of safety aspects of snowmobiles. Provides useful information but not very imaginatively. Part of a series of data sheets on transportation safety.

National Safety Council
425 N. Michigan Avenue
Chicago, Illinois 60611
Stock No. 429-04-100

Motorcycles in the United States, 1967. 12 pages. 10¢.

Pamphlet — Discussion, somewhat outdated, on the popularity, dangers, and operation of motorcycles. A section is included on how auto drivers should respond to motorcycles on the highway. No teaching activities included.

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Motorcycles and Their Operation, 1972. 20 pages. 14¢.

Pamphlet — Overview of motorcycle problems, including discussion of increase in registration, accident records, maintenance, licensing procedures, and legislation. The resources section on literature, films and magazines is very useful.

American Automobile Association
Traffic Engineering and Safety Department
1712 G Street, N.W.
Washington, D.C. 20006

Motorcycle Safety. Order #506E. Single copies free.

Pamphlet

U.S. Department of Transportation
Consumer Information Center
Pueblo, Colorado 81007

Motorcycling and You, 1969. 15 pages. 25¢.

Pamphlet

Brief, introductory discussion of motorcycling safety. However, pamphlet is not only skimpy but injunctive in approach, and while its admonition that motorcyclists must drive better than automobile drivers is wise, its claim that motorcycling is not dangerous if riders know their machine, obey traffic laws, and ride carefully and skillfully is misleading. Topics covered include use of brakes and gears, defensive driving, steering, and helmets. Some students may find cartoon format and injunctive approach condescending and/or childish. Part of a series of ten pamphlets on highway traffic safety.

Channing L. Bete Co. Inc.
45 Federal Street
Greenfield, Massachusetts 01301

Intelligent Motorcycling, 1966. 64 pages. Free.

Pamphlet

Reprints of ten in-depth articles from *Cycle World* on such topics as maintenance, safety, selection, and riding double. Although written for motorcycle enthusiasts, articles contain sound advice; overall emphasis is on safe driving. Written in a relaxed chatty style.

Parkhurst Publishing Company
745 West 3rd Street
Long Beach, California 90812

To the Proud New Owner of a Trailbike..., 1972. 38 pages. Free.

Pamphlet

Informal advice to the new motorcycle owner on such topics as safety, politeness, repairs, dress, and routes.

Motorcycle Industry Council, Inc.
1001 Connecticut Avenue, N.W.
Washington, D.C. 20036

Common Sense Tips for Safe Sportcycling, 1967. 33 pages. Single copies free.

Pamphlet — Motorcycle information on causes of accidents, maintaining motorcycles in safe riding condition, buying a used motorcycle, dressing for the ride, and the art of defensive driving. Good illustrations and photographs are provided.

Yamaha International Corporation
Yamaha Parts Distributors, Inc.
P.O. Box 6610
Buena Park, California 90620

Motorcycle Safety, (no date). 15 pages. Free.

Pamphlet — Brief discussion of motorcycle safety topics including operating motorcycle control features, common hazards, and proper riding apparel.

Motorcycle Industry Council, Inc.
1001 Connecticut Avenue, N.W.
Washington, D.C. 20036

Bicycling!, August and September 1972 and July and August 1973.

Periodical — Complete bibliographies of all available books, articles, and periodicals on bicycles are contained in these four issues.

Local Library or
Bicycling
119 Paul Drive, Box 3330
San Rafael, California 94902

The Bike Book, by Bibs Mcintyre, 1972. 262 pages. $1.25, paperback.

Book — Excellent discussion of how to buy and maintain and safely ride a bicycle. Unusual chapters deal informatively with how to prevent theft, how to work up to a fifty mile trip, and which accessories "would you really use." Exceptionally good resources section including list of local, state, and national bicycle clubs, racing organizations and clubs, and American Youth Hostel local council offices.

Pyramid Communications, Inc.
919 Third Avenue
New York, New York 10022

Helpful Hints on Bicycle Care for Safer Riding, (no date). 4 pages.

Flyer — Quick, but detailed overview of how to maintain a bicycle. Many of the suggested tasks involve more work than most riders will be willing to perform.

Bicycle Manufacturers Association
1101 15th Street, N.W.
Washington, D.C. 20505

Bikes, by Stephen C. Henkel, 1972. 189 pages. $1.25, paperback.

Book — Comprehensive, somewhat "establishment" account of bike styles, purchasing a bike, learning to ride, maintenance and repair, safety, and "having fun." Profusely and very well illustrated. Sections on do-it-yourself maintenance and repairs are especially good.

Local bookstore or
Bantam Books, Inc.
666 Fifth Avenue
New York, New York 10019

Bike Tripping, by Tom Cuthbertson, 1972. 172 pages, $3.00, paperback.

Book — Lively, informative account of how to take bike trips in terms of safety, the weather, where to go, and equipment to carry. Book also discusses learning to ride and purchasing a bike. Illustrated.

Ten Speed Press
Box 4310
Berkeley, California 94704

The Bike Book, (no date). 7 pages. Free

Flyer — Illustrated brief tips to youngsters on bicycle maintenance and safety.

National Safety Council
425 N. Michigan Avenue
Chicago, Illinois 60611

Bike Quiz Guide: Pedal Primer: Bicycles (no date). 7-9 pages each. Free.

Pamphlet — Three small introductory brochures on bicycle safety and maintenance.

Bicycle Manufacturers Association
1101 15th Street, N.W.
Washington, D.C. 20505

The Clear Creek Bike Book, 1972. 179 pages. $2.95, paperback.

Book — Informative, but somewhat meandering description of bicycle history, how to buy, ride and repair a bicycle, safety issues, and racing and touring. Unusual are the two sections on the history of bicycles and health benefits from bicycling. The section on "politics" is an especially useful discussion of how to influence the development of bikeways and parking facilities for bikes. Excellent photographs.

The New American Library, Inc.
1301 Avenue of the Americas
New York, New York 10022

Minibikes. Gordon Jennings. 91 pages.

Book — A guide to buying, riding and maintaining a minibike.

Prentice-Hall, Inc.
Englewood Cliffs,
New Jersey

National Directory of Safety Films, 1971. 60 pages. $3.50.

Catalogue

Capsule description of safety films that can be rented from the National Safety Council; however, none are evaluated and many are included that are either poor or mediocre. The reader must take "pot luck" and preview all films ordered before using with students.

National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611

Motorcycles and Their Operation, 1972. 20 pages. 14¢.

Bibliography

Overview of motorcycle problems with a resource section of twenty-four films, including ordering sources and prices.

American Automobile Association
Traffic Engineering and Safety Department
1712 G Street, N.W.
Washington, D.C. 20006

It's Not Where You're Going--It's How You Get There and Back. 16 mm, 10 min., color. $45.00 (purchase).

Film

A film on safe trailering practices developed by the Werthmann Group in cooperation with the U.S. Coast Guard.

Werthmann Group, Inc.
1933 Vernier Road
Grosse Pointe Woods, Michigan 48236

Bicycle Rules of the Road. 16 mm, 11 min., color.

Film

A dramatic demonstration emphasizes driver reaction time and the stopping distances of both automobiles and bicycles. Staged collision tests, using slow motion photography, forcibly demonstrate what happens when an automobile impacts with a bicycle at 25 and 47 mph.

National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611

Bicycle Safety. 35 mm, color.

Film — Illustrates where to learn to ride; what rules to follow when riding during the day, at night, and in the rain; how to prevent tire damage; and how to carry packages on a bike.

National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611

Bicycling with Complete Safety. 16 mm, 10 min.

Film — Film on bicycling safety for adults and children.

National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611

BACKGROUND LITERATURE FOR TEACHERS

ON TRANSPORTATION SAFETY

The materials in this section can be of direct assistance to teachers and curriculum developers for obtaining necessary background information in the field of transportation safety in order then to develop curriculum materials and to teach them. It should be noted that most of the materials included in the Student Materials section of the bibliographies may also be read profitably by curriculum developers and teachers to obtain this background information.

The materials are listed alphabetically by author under each transportation topic.

Automobile Safety

Amrine, Michael. *The Safe Driving Handbook.* (Grosset and Dunlap, New York: 1970).

Burby, John. *The Great American Motor Sickness.* (Little, Brown and Company, Boston: 1971).

Fales, Edward D. *Belts On, Buttons Down; What Every Mother Should Know About Car Safety.* (Delaconte Press, New York: 1971).

Nader, Ralph. *Unsafe at Any Speed.* (Bantam Books, New York: 1972; revised, 1973).

Bicycles

Alth, Max. *All About Bikes and Bicycling.* (Hawthorne Books, Inc., New York: 1972).

Boethling, Bob (ed.). *The Bicycle Book.* (Price, Stern, Sloan Publishers, Los Angeles, CA: 1972).

Consumer Guide. *Consumer Guide Bicycles: Complete Bicycle Buying Guide.* (Popular Library, New York: 1972).

Coombs, Charles, I. *Bicycling.* (William Morrow & Company, Inc., NJ: 1972).

Cuthbertson, Tom. *Anybody's Bicycle Book.* Ten Speed Press, Berkeley, 1971).

Cuthbertson, Tom. *Bike Tripping.* (Ten Speed Press, Berkeley, 1972).

Frankel, Lillian, and Godfrey Frankel. *Bicycle Book.* (Sterling Publishing Co., Inc., New York: 1972).

Henkel, Stephen C. *Bikes.* (Chatham Press, Inc., Riverside, CT: 1972).

MacFarlan, Allan A. *The Boy's Book of Biking.* (Pocket Books, New York: 1970).

McFarlane, John W. *It's Easy to Fix Your Bike.* (Follet Publishing Co., Chicago; revised edition; 1973).

McIntyre, Bibs. *The Bike Book.* (Harper & Row Publishers, New York: 1974).

Wagenvoord, James. *Bikes and Riders.* (VanNostrand Reinhold, Co.: Cincinnati, OH: 1972).

Boating Safety

Andrews, Howard L., and Alexander L. Russel. *Basic Boating: Piloting and Seamanship* (Prentice Hall: Englewood Cliffs, NJ: 1974).

Drinking and Driving

1968 Alcohol and Highway Safety Report. (U.S. Government Printing Office, Washington, DC: 1968).

Bacon, Margaret and Mary Brush Jones. *Teen-Age Drinking.* (Thomas Y. Crowell, New York: 1968).

Bacon, Sheldon D. (ed.). *Studies of Driving and Drinking.* (Rutgers University Center of Alcohol Studies, NJ: 1968).

Halverson, Guy. *Stop the Drunk Driver.* (The Christian Science Publishing Society, Boston: 1970). $1.00.

Maddox, George L. and Bevode C. McCall. *Drinking Among Teen-Agers; A Sociological Interpretation of Alcohol Use by High School Students.* (Rutgers University Center of Alcohol Studies, NJ: 1964).

Voas, R.B., and Len Tabor. *The Relationship of Alcohol Abuse to Highway Safety.* (U.S. Department of Transportation, National Highway Traffic Safety Administration, Washington, DC: 1970; Catalogue #H 5810165).

Emergency Vehicles

Keller, Hartmut. *An Analysis of Freeway Emergency Service Systems.* (National Technical Information Service, Springfield, VA: 1969; Catalogue #AD 695-378).

Recreational Vehicles

Malo, John W. *Snowmobiling: The Guide.* (MacMillan, New York: 1972).

Malo, John W. *All Terrain Adventure Vehicles.* (MacMillan, New York: 1972).

Thomas, James Lee. *Safe Snowmobiling: Fun Without Damage.* (Sterling Publishing Co., New York: 1971).

Tuite, James J. *Snowmobiles and Snowmobiling.* (Tower, New York: 1971).

U.S. Department of the Interior. *Offroad Recreation Vehicles.* (U.S. Government Printing Office: Washington, D.C.: 1972).

Wallace, Clark. *The Complete Snowmobile.* (Scribner, New York: 1972).

Wimer, Sally. *The Snowmobiler's Companion.* (Scribner, New York: 1973).

PERIODICALS

Periodicals can be a rich source of information on transportation safety. Even general consumer periodicals, like *Consumer Reports* and *Changing Times,* contain in many issues an article on transportation safety. Unfortunately, it was not feasible to include a definitive list of all relevant periodicals. For example, there are over two dozen on motorcycles alone. It was also impossible to provide here a list of relevant articles that have appeared in the recent past in periodicals. Moreover, the subscriber or reader cannot know in advance when a periodical will print an article that will interest him. Despite these drawbacks, many teachers and students will find it useful to subscribe to or read library copies of periodicals in the expectation that they will discover articles or references to additional materials of immediate relevance to their teaching or research efforts. The more specifically a periodical is related to his particular interest, of course, the more likely is the reader to find relevant materials. Teachers and readers can also consult in libraries the *Reader's Guide to Periodical Literature* for past articles about transportation.

American Motorcycle Association News
5655 North High Street
Worthington, Ohio 43085

Bicycling
119 Paul Drive, Box 3330
San Rafael, California 94902

Bike World
95 Main Street
Los Altos, California 94022

Boom in Bikeways
Bicycle Manufacturers Association
1101 15th Street, N.W.
Washington, D.C. 20505

Changing Times
The Kiplinger Magazine
Editors Park, Maryland 20782

Coast Guard Boating Safety Newsletter
Department of Transportation
Office of Boating Safety
400 Seventh Street, N.W
Washington, D.C. 20590

Consumer Educator
National Association of Secondary School Principals
2101 Sixteenth Street, N.W.
Washington, D.C. 20036

Consumer News
Federal Office of Consumer Affairs
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Consumer Reports
Consumer's Union
256 Washington Street
Mt. Vernon, New York 10550

Mini-Bike Guide
P.O. Box 1380
Huntington Beach, California

Motor Trend Magazine
8490 Sunset Boulevard
Los Angeles, California 90069

League of American Wheelmen Bulletin
19 South Bothwell
Palatine, Illinois 60067

Newsletter of the American Council on Consumer Interests
238 Stanley Hall
University of Missouri
Columbia, Missouri 65201

Of Consuming Interest
Federal State Reports
P.O. Box 986
Arlington, Virginia 22216
(703) 527-4950

Road and Track Magazine
P.O. Box 2324
FDR Post Office
New York, New York 10022

Skylights
National Aerospace Education Council
Suite 310
806 Fifteenth Street, N.W.
Washington, D.C. 20005

Sno Goer
1999 Shepard Road
St. Paul, Minnesota 55116

Traffic Safety
The National Safety Council
425 North Michigan Avenue
Chicago, Illinois 60611

Transpo Topics for Consumers
Department of Transportation
Office of the Secretary
Washington, D.C. 20590

GOVERNMENT INFORMATION AGENCIES

For further information about transportation consumer issues, citizens can contact the appropriate U.S. Department of Transportation and other agencies listed below:

Agency Name and Address	*Telephone Number**
U.S. Department of Transportation 400 7th Street, S.W. Washington, D.C. 20590	Office of Public Affairs 202/426-4321
Office of the Secretary of Transportation	Office of Consumer Affairs 202/426/4520
National Highway Traffic Safety Administration (address above)	Consumer and Public Affairs 202/426-0670
Federal Highway Administration (address above)	Public Affairs 202/426-0648
United States Coast Guard (address above)	Public Affairs 202/426-1587
Urban Mass Transportation Administration (address above)	Public Affairs 202/246-4043
Federal Railroad Administration (address above)	Public Affairs 202/426-0881
Federal Aviation Administration U.S. Department of Transportation 800 Independence Avenue, S.W. Washington, D.C. 20491	Public Affairs 202/426-3883
Interstate Commerce Commission Constitution Avenue and 12th Street, N.W. Washington, D.C. 20423	Consumer Phone 202/343-4761
Federal Trade Commission Pennsylvania Avenue and 6th Street, N.W. Washington, D.C. 20580	Bureau of Consumer Protection 202/962-2358
Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460	Public Information 202/755-0890

*For specific information consumers may be referred to other numbers.

BIBLIOGRAPHY EVALUATION CRITERIA

All teacher and student materials that were located were evaluated along two dimensions: *quality* and *relevance*. Quality was defined to include the following components:

- Provision of creative and detailed classroom activities or learning experiences that go beyond the one- or two-sentence "have the students do *x*, *y*, *z*" suggestions
- Development of decision-making skills that may be transferable to other safety issues
- Attention to affective educational approaches and objectives, not merely cognitive ones
- Emphasis on student initiative and involvement in classroom activities and in the planning of those activities
- A concern-centered approach that predicates learning on the assessment of student concerns and the development and use of classroom activities that initially deal with those concerns
- The provision of a lucid conceptual framework of transportation safety education by which teachers can grasp the field and the interrelationships of its components and by which teachers can develop additional activities and units of their own
- A modular, flexible approach that enables teachers to develop activities and units tailored to the needs of their particular students and community
- Provision of accurate factual information
- A nonmoralistic, noninjunctive approach
- Stress on the needs and problems of economically or geographically disadvantaged groups
- An interdisciplinary approach to transportation safety education

Few curriculum materials combined all these quality ingredients. Many included none or a few. In some borderline cases where a teaching material contained some quality ingredients, the authors made a subjective evaluation on whether the material contained enough of these elements to warrant referencing in the module.

To be considered relevant, a teaching material had to deal in a significant way with transportation safety from the point of view of, or useful to, the average citizen. Teaching materials were excluded from the module when their relevance was extremely limited or

nonexistent because

- Only a small section of the material dealt with transportation safety issues. However, such materials were included when a subsection was of high caliber, dealt with an important aspect of transportation safety not covered elsewhere, or was part of an easily accessible and inexpensive unit.
- The material was designed for a highly specialized audience.
- The material was outdated.
- The material contained information that applied primarily or significantly to a local situation.
- The material was not distributed out of state.

SPIRIT MASTER #1: FOR USE WITH ACTIVITY #11

FLEMING VS. RONDO--A HEARING

Below are five statements given in an automobile accident case, Fleming vs. Rondo. Ms. Fleming is suing Mr. Rondo for property damages. This complaint is being held before a hearing officer to determine if settlement can be reached out of court. Each person at the hearing is given the opportunity to tell his or her side of what happened in an attempt to arrive at a solution to the problem.

Hearing Officer: My name is Ms. Sussman. I am the hearing officer this afternoon. Present in the room are Ms. Fleming who has brought a suit for property damages against Mr. Rondo. Others present are Officer O'Connor, who filled out the Police Accident Report in this case, and two witnesses, Mr. Fleming and Mr. Williamson.

I am here to listen to you all. Each person will be given a chance to make a statement. No one should interrupt the other.

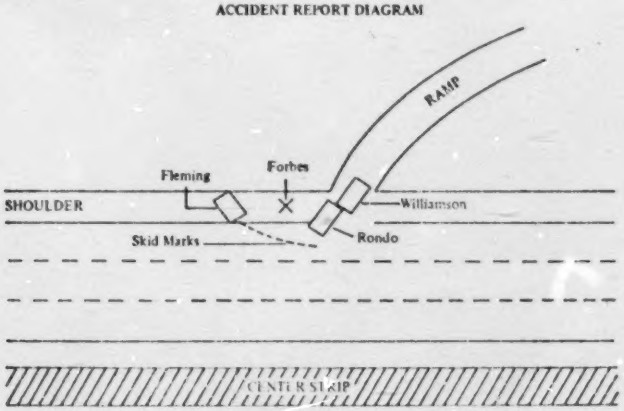
I am not here to judge either party; I am here to help you reach a resolution and keep this case from going to the courts to save your time and money.

Officer O'Connor would you begin this hearing by making your statement.

Officer O'Connor (without emotion or inflection): I had come on duty the day of the accident at around 5:00 o'clock. I hadn't been out on the road for more than 20 minutes when I got a call on my radio that there had been an accident on the highway near the Ocean View exit. Patrol cars in the area were to report there right away--traffic was all tied up.

Let me use this accident report diagram to show you what I found when I got to the scene. One car--this one here--was up against the guard rail and two others were sitting in the road near the entrance ramp to the highway. The hitchhiker--who of course had moved from where he was standing at the time of the accident--was probably standing right about here in the road. Anyway, when I got to the scene, the cars were just like they are in the diagram. Several people were gathered around a woman who was sitting on the guard rail. I pulled my car over to the side and got out.

ACCIDENT REPORT DIAGRAM



I went over to the group of people and asked what had happened and if anyone were hurt. The woman's knee was bleeding, but other than that she and everyone else seemed all right. The woman's name was Sheila Fleming. She had been driving the car that was up against the guard rail. We measured her skid marks later--she had been driving between 45 and 50 miles per hour at the time of the accident. The hitchhiker was a young kid named Jim Forbes--about 19 years old. The drivers of the other two cars were a Mr. Rondo and a Mr. Williamson. As far as we could find out, none of them had been involved in a serious accident before. That's about all I can tell you sir. All three cars were pretty badly damaged, though.

Hearing Officer: Thank you Officer O'Connor. Mr. Forbes, would you give your statement now.

Mr. Forbes (a little "spacey"): Well...I was hitching a ride on Route 44. I'm afraid I really didn't see too much of the accident because I wasn't paying much attention to the road. I tend to do a lot of day dreaming while I'm hitching rides--you have to or you can go bats while you're standing there waiting for somebody to pick you up.

I didn't even see Ms. Fleming pulling over. The first thing I remember was hearing a horn blowing. I sort of "came to" then, just in time to see Ms. Fleming hit the guard rail right behind me, and the other two cars crashing into each other. My heart was beating a mile-a-minute. I'm just glad I'm still alive. I could have been hit, you know. In fact, I could have been hurt pretty badly.

Hearing Officer: Thank you Mr. Forbes. Ms. Fleming would you make your statement please.

Ms. Fleming (trying to sound calm and firm): I was driving in the middle lane of Route 44. I wasn't too far away from Mr. Forbes--maybe a quarter of a mile, I'm not too sure exactly how far it was--when I noticed him standing near the entrance ramp hitching. He looked like a nice person so I thought I would do him a favor and pick him up. I checked my rear view mirror and started to gradually change lanes so that I could stop to give him a ride. There was *no one* behind me when I started to pull over. *I am sure of that.* I am a very careful driver--I have never had an accident in my life. Just as I got into the other lane, a horn started blaring from somewhere behind me and I heard a squeal of brakes. (becoming somewhat emotional) It was then I lost control of the car and hit the guard rail.

Hearing Officer: Mr. Rondo, may we now hear your side of the accident.

Mr. Rondo (somewhat definite): I was entering the highway by the entrance where Mr. Forbes was standing. I get on the highway by that ramp every evening of the week. I know it well. Every night I go about it in just the same way. I come down the ramp, cautiously come out on the highway on the shoulder, then squeeze into the flow of traffic. That's the only way to do it--otherwise you sit there forever, waiting until someone gives you a break. That night would have been like any other if that hitchhiker hadn't been there. I had to pull out into traffic--if I hadn't I would have hit that kid. And that lady had to be pulling over just then too--she should have looked before she started to pull over. I know that road--I've driven it a million times--and I know you can see all the traffic on the entrance ramp from where that lady was. She should have seen me. She should have waited to pull over. Dumb...woman.

Hearing Officer: Thank you, Mr. Rondo. And, Mr. Williamson, may we hear from you now.

Mr. Williamson (matter of factly): I was behind Mr. Rondo on the entrance ramp. Traffic was really heavy so we were all moving pretty slowly and everybody was pretty close to everybody else. But it's always like that at rush hour. If you're a good driver nobody has accidents--you just got to be able to handle yourself and your car. Anyway, Mr. Rondo was just about to move out on the highway--in fact I think he had just started to speed up a little--I remember that because I was thinking my car hadn't had pick-up like his since it was a week old. Nothing like a new car. (pause) Well, anyway, I was just about to step on the accelerator when I heard this horn--I didn't even know it was that guy Rondo in front of me. I just slammed on my brakes and whammo. What can I say?

SPIRIT MASTER #3: FOR USE WITH ACTIVITIES #2 AND #13

Sample Safety Belt Poll

1. Do you regularly wear safety belts? Yes _____ No _____

2. If you do not, skip to Question 7. If you do, why do you wear them?

3. If you do, do the other members of your family (or friends) wear them regularly? Yes _____ No _____

4. If not all of them do, why don't they?

5. Have you ever tried to persuade them to wear them? Yes_____ No_____

6. How have you tried to persuade them--what arguments and approach did you use? (Skip now to Question 10.)

7. Why don't you wear them?

8. Has anyone ever tried to persuade you to wear them? Yes _____ No_____

9. What arguments and approach did they use to persuade you?

_____

_____

_____

_____

10. Do you feel the government should make it illegal not to wear safety and shoulder belts and enforce a five dollar fine every time a driver or passenger is caught not wearing one? Yes _____ No_____

11. Explain the reasons for your answer..

SPIRIT MASTER #4: FOR USE WITH ACTIVITY #14

Questionnaire on Safety Belts

		True	*False*
1.	Very few people will get into a serious automobile accident during their lives.	☐	☐
2.	Accidents at slow speeds rarely involve serious injuries or deaths.	☐	☐
3.	Most accidents causing injury or death occur at speeds of less than 40 miles per hour.	☐	☐
4.	There is no clear evidence that safety belt use saves lives.	☐	☐
5.	Even wearing safety belts, people in many serious accidents are still usually killed.	☐	☐
6.	Although safety belts are usually a good idea, there are often times when people's lives are saved in car accidents because they were not wearing belts and were thrown free from a crashing, burning, or sinking car.	☐	☐
7.	Shoulder belts add a great deal to the protection offered by lap belts.	☐	☐
8.	Passengers in the rear seats of cars don't need to wear safety belts as much as people in front seats.	☐	☐
9.	A frequent complaint expressed by people who were in accidents while using safety belts is that they suffered bruises and soreness.	☐	☐
10.	Safety belts sometimes prevent accidents because they can increase the driver's control over the car.	☐	☐
11.	If people drive very carefully, they don't need to use safety belts because they can make sure they don't get into an accident.	☐	☐
12.	Accidents occur more often on city streets than on freeways and turnpikes.	☐	☐
13.	Most Americans use safety belts most of the time.	☐	☐

SPIRIT MASTER #4: FOR USE WITH ACTIVITY #14

Questionnaire on Safety Belts

		True	*False*
1.	Very few people will get into a serious automobile accident during their lives.	☐	☐
2.	Accidents at slow speeds rarely involve serious injuries or deaths.	☐	☐
3.	Most accidents causing injury or death occur at speeds of less than 40 miles per hour.	☐	☐
4.	There is no clear evidence that safety belt use saves lives.	☐	☐
5.	Even wearing safety belts, people in many serious accidents are still usually killed.	☐	☐
6.	Although safety belts are usually a good idea, there are often times when people's lives are saved in car accidents because they were not wearing belts and were thrown free from a crashing, burning, or sinking car.	☐	☐
7.	Shoulder belts add a great deal to the protection offered by lap belts.	☐	☐
8.	Passengers in the rear seats of cars don't need to wear safety belts as much as people in front seats.	☐	☐
9.	A frequent complaint expressed by people who were in accidents while using safety belts is that they suffered bruises and soreness.	☐	☐
10.	Safety belts sometimes prevent accidents because they can increase the driver's control over the car.	☐	☐
11.	If people drive very carefully, they don't need to use safety belts because they can make sure they don't get into an accident.	☐	☐
12.	Accidents occur more often on city streets than on freeways and turnpikes.	☐	☐
13.	Most Americans use safety belts most of the time.	☐	☐

SPIRIT MASTER #5: FOR USE WITH ACTIVITIES #3 AND #16

Sample Class Poll on Drinking and Driving

1. Which of the following *least* affects the amount of alcohol in the bloodstream? (a) Stomach content (b) Weight (c) Drinking experience (d) Time elapsed

2. Which of the following *best* describes the effects of alcohol on driver performance? (a) Blurs vision (b) Reduces hearing ability (c) Increases attention span (d) Reduces ability to react quickly

3. When a nondrinking driver is compared with a drinking driver who has had three drinks, how much more likely is it that the drinking driver will become involved in a traffic accident? (a) No difference (b) 10 times greater (c) 25 times greater (d) No one knows

4. On the basis of present-day knowledge, the greatest single driver related cause of fatal highway collision is: (a) Emotional upsets (b) Inattention (c) Fatique (d) Alcohol

5. What percentage of fatal traffic accidents involve alcohol use? (a) 1 percent (b) 10 percent (c) 50 percent (d) Nearly all (e) No one knows

6. Of all alcohol-related fatal car accidents: (a) 2/3 involve problem drinkers (b) Most involve social drinkers who had one too many (c) 1/2 involve people who had only a little to drink (d) No one knows what kind of drinkers are involved.

7. Every day in the United States an average of approximately how many people are killed in car accidents in which alcohol was involved? (a) 3 (b) 10 (c) 75 (d) 200 (e) No one knows

8. Police know that 2/3 of the alcohol-related traffic fatalities are caused by problem drinkers because of all of the following *except:* (a) Their very high blood alochol levels (b) Their previous record of offenses (c) Their record of alochol problems (d) Their very high speed rate just before the accident

9. The social drinker-driver is dangerous because: (a) Of sheer numbers (b) They are not easy to spot and defend against (c) They fail to recognize their limitations (d) All of these

10. Problem drinkers who drive usually have: (a) Serious health problems (b) Other personal problems (c) Low intelligence (d) A record as law-abiding citizens

11. Which of the following is *most* affected by heavy drinking? (a) Brake reaction time (b) Color perception (c) The reasoning proces (d) Distance judgment

12. Excessive drinking may have which of the following dangerous effects on a driver? (a) Overconfidence (b) Risk taking desires (c) Decreased judgment (d) Increased reaction time (e) Lack of concentration (f) c and f (g) c, f, and g (h) All of the above

13. Since we know that 2/3 of all alcohol-related traffic fatalities are associated with problem drinkers: (a) We should ignore social drinkers who drink and then drive (b) Problem drinkers should be a major focus of efforts to reduce drinking-driving accidents (c) Drivers should feel free to have a couple of drinks before driving (d) All of the above

14. Teenagers are most likely to have difficulty driving safely after drinking because of all of the following *except*: (a) Driving is a new and complicated skill for them (b) They have had less experience with alcohol's effects (c) They often weigh less than adults (d) They spend more time driving than adults do

SPIRIT MASTER #6: FOR USE WITH ACTIVITY #24

Poll on Automobile Breakdowns

Sex: M ___ F___

Age: Under 18___ 18-21 ___ 22-29 ___ 30-39 ___ 40-59 ___ 60 or over ___

Has a car you were driving or riding in ever broken down while on the road?
(if answer to above is yes, proceed with poll)

Answers should pertain to only one accident.

1. Where did the car break down?

2. What was the time of day?

3. What were the weather conditions?

4. How long were you stranded?

5. Did you require assistance? If so, how was it obtained?

6. Did you use any equipment while stranded either to fix the car or for personal safety?

   - Jack
   - Blankets
   - Flares
   - Fire extinguisher
   - Flashlight
   - First aid kit
   - Rain gear
   - Tape
   - Empty container
   - Other _____

7. What equipment, if any, would have been helpful to you in this situation (refer to list in 6 above)?

8. How did you feel while you were stranded?

   - Scared
   - Calm
   - Able to deal with situation
   - Unsure what to do
   - Other _____

9. If there were others with you, how did they feel?

   - Scared
   - Calm
   - Able to deal with situation
   - Unsure what to do
   - Other _____

10. If there were others with you, did that make the situation better or worse? Why?

11. Was there any way you could have avoided this breakdown or done sometning to make it better?

SPIRIT MASTER #7: FOR USE WITH ACTIVITY #27

OBSERVATION SHEET*

Location:

Time of day:

Traffic conditions:

Description of pedestrian facilities (e.g., crosswalks, lights, signs, overhead walks)--a map may be drawn if desired:

Pedestrian Type / *Characteristics*	*Young Child*	*Teenager*	*Adult*	*Elderly*
Handicapped				
Male				
Female				
Crossed street correctly				
Ran				
Crossed other than at intersection or crosswalk				
Not paying attention				
Crossed against light				
Caught in middle of street				
Standing in street waiting to cross				

OTHER

*Observation sheet may be filled with check marks, hatch marks.

COAST GUARD REQUIREMENTS/MINIMUM REQUIRED EQUIPMENT

Equipment	*Class A* (Less than 16')	*Class 1* (16'-less than 26 feet)	*Class 2* (26' to less than 40')	*Class 3* (40' to not over 65')
Back-fire flame arrestor	One approved device on each carburetor of all gasoline engines installed after April 25, 1940, except outboard motors.			
Ventilation	At least two ventilator ducts fitted with cowls or their equivalent for the purpose of properly and efficiently ventilating the bilges of every engine and fuel tank compartment of boats constructed or decked over after April 25, 1940, using gasoline as fuel or other fuels having a flash-point of 110° or less.			
Personal Flotation Devices (PFD)	One approved Type I, II, III or IV device, for each person on board or being towed on water skiis, etc.	One approved Type I, II, or III device aboard for each person and, in addition, one throwable Type IV device.		
Bell, Whistle	None	Whistle--one hand, mouth, or power operated, audible at least ½ mile.	Bell--one, which when struck, produces a clear, bell-like tone of full round characteristics. One hand or power operated, audible at least one mile.	One power operated, audible at least 1 mile.
Fire Extinguisher Portable (When *NO* fixed fire extinguishing system is installed in machinery spaces)	At least one B-1 type approved hand portable fire extinguisher. (Not required on outboard motorboat less than 26' long and not carrying passengers for hire if the construction of such motorboats will not permit the entrapment of explosive or flammable gases or vapors.)		At least two B-1 type approved portable fire extinguishers; *OR* at least 1 B-11 type approved portable fire extinguisher.	At least 3 B-1 type approved portable fire extinguishers; *OR* at least 1 B-1 type Plus one B-11 type approved portable fire extinguisher.
When fixed fire extinguishing system is installed in machinery space(s).	None.	None.	At least 1 B-1 type approved portable fire extinguisher.	At least 2 B-1 type approved portable fire extinguishers; *OR* at least 1 B-11 type approved portable fire extinguisher.

B-1 Type Approved Hand Portable Fire Extinguishers contain: Foam, 1½ up to 2½ gallons; or Carbon Dioxide, 4 up to 15 lbs.; or Dry Chemical, 2 up to 10 lbs.; or Freor, 2½ lbs. *B-11 Type Approved Portable Fire Extinguishers* contain: Foam, 2½ gallons; or Carbon Dioxide, 15 lbs.; or Dry Chemical, 10 lbs.

SPIRIT MASTER #9: FOR USE WITH ACTIVITY #29

It was late on a summer afternoon, one of those sweltering days when heat rises from the pavements and nothing seems as pleasant as the prospect of getting away from the city and into the country. Joe was riding along in his father's car and in spite of the heat he felt great. He had finished working at his summer job as a gas station attendant about half an hour earlier and he had got paid. He had talked his mother into letting him use the family car to drive out to the lake and go for a swim with his friends. "Be careful," his mother had said. "Are you going to ask Carol to come along, too?" "Yes, I think I will," "Well, good, maybe you'll be careful for her sake if not yours," his mother had said and waved him on. She liked Carol and knew that she was not the kind of girl who would spur Joe on to foolishness. "We won't expect you for dinner, but don't be home too late." "OK, we won't," he had agreed, but he didn't know whether his mother had heard him since he was already half-way down the driveway.

When he arrived at Carol's house and proposed a drive and picnic and a swim at the lake, she quickly agreed. Her mother, too, urged them to be careful, but she liked to see the young folks have some fun, especially in this heat.

When they were in the car, Joe suggested that maybe they should take another couple along for company. And without much difficulty, they rounded up Bill and Joan, who quickly agreed.

Quite a bit of time elapsed before the four young people got to the lake, though. They had to buy some frankfurters, and charcoal and some soft drinks and then it was forty minutes' drive to the lake. They started the charcoal in one of the outdoor stoves and all went for a swim. When they got out of the water, they were hungry and put their frankfurters on the grill. Joe opened the cans of soda, but when he offered one to Bill, he declined. "No, thanks, I've got something better." He reached into his picnic refrigerator and produced a can of beer. "Anybody care to join me?" Joan took one, but Bill hooted derisively when Joe and Carol turned down the offer. "What's the matter with you two? Don't you like any fun? Come on, we've got a long time before we have to go home, nobody will ever know the difference." "No, thanks, Bill," Joe said, "but I've got to do the driving going home and I don't want any beer right now."

Bill: A little beer isn't going to hurt your driving. In fact, it'll probably relax you and help you.

Joe: No, thanks, you go ahead, but I'll pass.

Bill: Well, OK, but I'm going to do a little driving even though I've had a can of beer.

Joe: Oh, no, you're not going to drive my car, especially not after drinking. Sorry, but that's definite.

Bill: Dummy, I'm not talking about a car. I'm talking about a boat. My uncle's motorboat is tied up here and he said I could use it any time. I've driven it before, and he trusts me with it, so much that he's given me a set of keys for it. Come on, you want to go right now?

Joe: Oh, I don't know, it doesn't seem too good an idea. What do you think, Carol?

Carol: I don't know, I don't think so. What do you think, Joan?

Joan: I don't know, I guess maybe it's OK.

Bill: Come on, everybody keeps saying, "I don't know." This will be fun. It's got a big engine on it, over 100 horsepower I think. That makes it safe, you know. We can get out of any trouble real fast. But I don't think we'll get into any. We'll just spin around a few times. What do you say?

Joe: Bill, you know Carol doesn't swim so good. Do you have any life jackets in that boat?

Bill: Who needs life jackets? This lake is just a puddle, you can practically walk from one end to the other. If Carol falls over, I'll jump in after her and get her before she knows she's even been in the water.

Joan: Yeah, who is driving the boat while you're doing that?

Bill: Come on, come on. All you people think of is reasons not to go. Why don't you think of reasons to go? We have a boat, it's hot, we can get a little high with beer and we can cool off riding a... ... Now what could be better?

Carol: Yah, but...

Bill: No more yah-buts, let's go, gang...

SPIRIT MASTER #11: FOR USE WITH ACTIVITY #43

ACCIDENT DATA SUMMARY

STATE	1970 - 1974: FIVE-YEAR SUMMARY OF SELECTED ACCIDENT DATA BY STATE														
	Total Number of Reported Accidents					Fatal Accidents					Fatalities				
	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974
Total:	3803	3909	3942	5322	5104	1132	1219	1152	1418	1370	1418	1582	1437	1754	1446
Alabama	83	91	109	111	117	40	37	47	36	40	45	46	53	41	50
Alaska	64	64	42	71	53	13	38	13	30	21	21	60	18	35	33
Arizona	48	51	57	109	92	10	7	10	8	12	13	12	12	8	17
Arkansas	24	15	29	53	25	18	11	21	38	16	24	13	27	45	20
California	556	566	555	696	646	82	101	89	99	95	116	138	115	128	125
Colorado	15	21	19	15	17	3	7	4	12	4	3	8	6	13	4
Connecticut	42	51	41	67	62	10	17	13	15	11	12	19	15	18	16
Delaware	8	5	11	13	20	5	3	5	7	2	7	4	6	9	2
District of Columbia	1	5	7	5	7	1	2	4	3	4	1	3	4	5	8
Florida	219	284	179	374	473	59	73	65	91	65	71	90	99	124	82
Georgia	35	48	30	72	84	24	19	16	33	28	29	28	19	36	34
Hawaii	36	15	37	27	63	1	2	7	1	5	1	2	9	1	5
Idaho	9	18	24	20	39	6	9	5	4	10	9	18	5	5	12
Illinois	77	80	82	127	78	27	31	36	51	29	31	33	45	69	43
Indiana	38	16	46	30	9	11	14	15	15	9	14	21	16	19	11
Iowa	30	42	35	54	61	8	11	6	16	15	8	15	7	16	18
Kansas	30	39	31	28	35	10	7	10	12	5	14	8	12	14	7
Kentucky	55	13	65	100	59	22	6	22	35	23	25	6	27	48	27
Louisiana	89	81	85	125	91	51	42	39	65	66	65	53	41	72	79
Maine	57	63	95	59	49	19	23	15	13	23	26	36	16	14	28
Maryland	127	145	149	196	188	29	38	30	41	37	35	50	34	44	47
Massachusetts	29	62	57	92	92	21	23	17	31	25	24	42	20	45	31
Michigan	217	191	194	392	320	66	67	63	79	58	79	77	72	94	69
Minnesota	74	76	83	107	97	34	32	25	32	36	38	37	34	35	42
Mississippi	23	41	33	45	39	16	30	20	19	14	18	40	27	26	18
Missouri	89	106	89	114	187	28	34	15	18	26	38	37	20	21	31
Montana	14	11	15	18	10	11	10	10	12	6	15	12	10	15	9
Nebraska	21	17	22	18	25	8	4	7	9	2	11	5	8	12	2
Nevada	32	53	66	87	52	3	8	7	4	2	4	11	7	5	2
New Hampshire	3	4	4	7	7	2	3	2	6	7	4	3	2	9	9
New Jersey	191	188	183	238	211	25	29	34	21	18	33	35	47	27	21
New Mexico	7	5	8	6	12	2	2	1	1		2	2	3	3	
New York	293	318	301	349	318	58	71	63	104	71	76	90	72	132	89
North Carolina	115	83	142	132	129	28	34	41	41	31	33	42	50	51	37
North Dakota	3	3	4	5	11	2		2	2	6	2		3	2	7
Ohio	84	97	97	145	138	31	21	26	54	34	34	35	35	73	36
Oklahoma	33	32	22	23	32	13	18	13	12	14	16	24	16	14	21
Oregon	68	68	60	83	146	27	23	17	15	30	35	31	23	17	33
Pennsylvania	71	80	86	86	79	25	28	40	26	25	33	31	46	32	28
Rhode Island	37	28	24	36	29	5	2	4	5	3	5	2	5	6	3
South Carolina	92	78	54	111	115	37	32	39	54	43	41	41	47	58	56
South Dakota	6	12	2	12	3		6	2	4	2		12	4	7	2
Tennessee	36	18	48	72	61	18	17	22	36	31	27	22	25	47	37
Texas	183	201	195	231	236	76	91	66	78	60	98	113	87	95	70
Utah	11	53	43	65	25		3	8	6	7		3	15	6	8
Vermont	3	1	8	8	2	3	1	7	8	2	6	1	9	13	2
Virginia	90	84	79	110	89	39	25	27	35	35	50	30	33	44	41
Washington	121	121	116	153	190	37	47	31	14	20	49	73	50	19	26
West Virginia	20	12	20	17	19	10	7	15	12	8	12	7	15	12	9
Wisconsin	152	122	127	166	112	49	46	44	43	27	56	53	50	52	32
Wyoming	28	23	24	36	39	6	4	8	10	7	6	4	9	15	7
Guam	5		2			3					3				
Puerto Rico	3	3	5	3	5		1	4	1			1	7	2	
Virgin Islands	6	5	1	3	4		2		1			3		1	
American Samoa[a]															

[a]American Samoa was not required to report boating accidents until 1973.

SPIRIT MASTER #12: FOR USE WITH ACTIVITY #43

ACCIDENT DATA BY STATE

1974	Number of Accidents				Number of Vessels Involved in Accidents				Number of Persons		Amount of Damage (Dollars)
	Total	Fatal	Nonfatal Injury	Property Damage Only	Total	Fatal	Nonfatal Injury	Property Damage Only	Killed	Injured Nonfatally	
Total:	5104	1170	679	3255	6449	1205	826	4418	1446	993	$9,181,500
Alabama	117	40	26	51	134	41	29	64	50	37	156,100
Alaska	53	21	3	29	58	21	3	34	33	5	119,000
Arizona	92	12	12	68	116	14	14	88	17	15	213,000
Arkansas	25	16	1	8	28	16	1	11	20	1	10,800
California	648	95	88	465	900	100	104	696	125	118	1,399,500
Colorado	17	4	3	10	21	5	4	12	4	4	15,600
Connecticut	62	11	8	43	97	11	12	74	16	15	75,200
Delaware	20	2	2	16	23	2	2	19	2	3	29,200
District of Columbia	7	4		3	7	4		3	8		17,100
Florida	473	65	63	345	575	67	73	435	82	95	1,775,300
Georgia	84	28	16	40	110	29	24	57	34	24	92,600
Hawaii	63	5	2	56	77	5	2	70	5	3	353,300
Idaho	39	10	6	23	52	10	7	35	12	7	35,900
Illinois	78	29	5	44	101	31	7	63	43	23	160,400
Indiana	9	9			10	10			11	5	
Iowa	61	15	12	34	75	16	14	45	18	21	88,200
Kansas	35	5	10	20	46	6	12	28	7	13	40,800
Kentucky	59	23	9	27	67	23	10	34	27	11	56,800
Louisiana	91	66	3	22	104	71	5	28	79	13	71,800
Maine	49	23	6	20	58	24	6	28	28	9	36,300
Maryland	188	37	20	131	244	37	23	184	47	27	406,300
Massachusetts	92	25	10	57	130	26	15	89	31	11	115,500
Michigan	320	58	45	217	396	58	46	292	69	62	348,700
Minnesota	97	36	20	41	135	38	30	67	42	26	68,300
Mississippi	39	14	9	16	49	14	14	21	18	9	58,300
Missouri	187	26	23	138	220	27	29	164	31	34	146,800
Montana	10	6	2	2	11	6	2	3	9	4	2,200
Nebraska	25	2	6	17	36	2	9	25	2	8	52,500
Nevada	52	2	5	45	59	2	6	51	2	7	95,200
New Hampshire	7	7			7	7			9		
New Jersey	211	18	25	168	268	18	31	219	21	31	433,900
New Mexico	12		2	10	16		3	13		3	13,000
New York	318	71	41	206	412	73	52	287	89	68	411,200
North Carolina	129	31	19	79	160	33	22	105	37	29	211,600
North Dakota	11	6		5	16	6		10	7		7,300
Ohio	138	34	8	96	170	35	9	126	36	14	180,000
Oklahoma	32	14	9	9	39	15	12	12	21	16	33,600
Oregon	146	30	25	91	162	30	28	104	33	33	206,200
Pennsylvania	79	25	16	38	98	25	18	55	28	23	71,300
Rhode Island	29	3	3	23	37	3	3	31	3	3	89,800
South Carolina	115	43	23	49	136	44	28	64	56	35	230,000
South Dakota	3	2		1	4	2		2	2		800
Tennessee	61	31	9	21	71	31	10	30	37	13	26,700
Texas	236	60	31	145	301	60	37	204	70	41	362,900
Utah	25	7	1	17	31	7	2	22	8	1	56,600
Vermont	2	2			2	2			2		
Virginia	89	35	9	45	110	36	13	61	41	12	115,900
Washington	190	20	14	156	244	20	17	207	26	20	495,100
West Virginia	19	8	2	9	22	8	2	12	9	2	24,700
Wisconsin	112	27	24	61	152	27	32	93	32	34	123,000
Wyoming	39	7	2	30	40	7	2	31	7	4	16,200
Guam											
Puerto Rico	5		1	4	6		2	4		1	3,900
Virgin Islands	4			4	6			6			27,100
American Samoa											

SPIRIT MASTER #13: FOR USE WITH ACTIVITY #43

Type of Casualty	RESULTS OF BOATING ACCIDENTS														
	Fatalities					Injuries					Amount of Damage (Dollars)				
	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974
Grounding	7	15	15	20	14	28	20	53	70	37	590,000	1,040,000	867,000	1,792,200	817,600
Capsizing	569	659	574	796	602	52	74	86	137	79	348,000	692,000	350,000	429,100	692,900
Flooding	128	82	81	48	38	7	6	13	11	14	419,000	323,000	355,000	264,300	406,700
Sinking	60	63	68	89	80	6	12	15	34	26	260,000	534,000	720,000	901,400	789,800
Fire or Explosion of Fuel	21	18	16	18	12	160	123	97	286	96	3,044,000	2,704,000	1,884,000	3,765,900	2,448,000
Other Fire or Explosion	5	2	4	4	5	11	4	5	27	7	965,000	1,767,000	315,000	869,100	647,700
Collision with Another Vessel	55	83	64	67	53	232	350	237	449	272	1,146,000	987,000	1,636,000	1,947,200	1,728,300
Collision with Fixed Object	62	61	55	65	73	99	120	107	238	165	686,000	568,000	410,000	1,021,400	1,054,800
Striking Floating Object	25	20	37	21	17	24	22	26	37	32	505,000	280,000	326,000	255,600	287,500
Other Casualty to Vessel	24	55	43	37	53	9	13	6	23	65	177,000	44,000	136,000	71,300	187,300
Falls Overboard	348	336	337	390	330	36	38	58	85	43	25,000	17,000	9,000	25,200	19,200
Falls Within Boat		1		9	10	9	10	3	34	26				11,600	6,800
Struck by Boat or Propeller	12	13	16	15	21	46	24	57	97	73		9,000		1,900	6,000
Other Personnel Casualties	102	174	127	175	138	61	79	72	171	58	6,000	57,000	99,000	60,200	93,900
Total	1418	1582	1437	1754	1446	780	897	829	1599	993	8,173,000	9,022,000	7,107,000	1,376,600	9,181,500

Type of Casualty	VESSELS INVOLVED IN ACCIDENTS																			
	Total					Fatal					Injury					Property Damage				
	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974
Grounding	190	210	240	283	284	6	11	12	17	11	20	14	38	39	28	164	185	190	227	245
Capsizing	592	641	615	874	778	435	474	434	603	455	20	28	18	71	39	137	139	163	200	284
Flooding	220	173	152	149	154	94	64	62	35	30	3	4	5	8	9	123	105	85	106	115
Sinking	133	177	203	335	351	35	40	44	66	61	3	7	8	15	13	95	130	151	254	277
Fire or Explosion of Fuel	375	350	309	372	366	18	15	15	14	10	70	78	53	101	58	287	257	241	257	298
Other Fire or Explosion	73	77	48	105	85	4	2	4	3	4	6	2	4	20	3	63	73	40	82	78
Collision with Another Vessel	1915	2009	2261	2853	2845	57	87	97	100	80	294	378	270	537	307	1574	1544	1894	2216	2458
Collision with Fixed Object	411	415	358	599	573	51	53	46	60	62	64	91	58	132	112	296	271	234	407	399
Striking Floating Object	198	164	173	190	155	18	15	31	18	15	19	20	11	29	21	161	129	131	143	119
Other Casualty to Vessel	80	67	59	96	189	15	35	20	21	32	8	8	6	21	51	57	24	33	54	106
Falls Overboard	359	352	375	433	362	328	314	317	364	312	30	32	49	62	37	1	6	9	7	13
Falls Within Boat	9	10	3	36	39		1		5	10	9	8	3	30	24		1		1	5
Struck by Boat or Propeller	57	46	72	109	100	12	13	17	15	21	45	24	55	92	69		9		2	10
Other Personnel Casualty	150	224	196	304	168	85	133	98	145	102	65	63	89	147	55	4	28	29	12	11
Total	4762	4915	5044	6736	6449	1158	1257	1197	1466	1205	642	757	611	1304	826	2962	2901	3200	3968	4418

Type of Casualty	BOATING ACCIDENTS																			
	Total					Fatal					Injury					Property Damage				
	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974	1970	1971	1972	1973	1974
Grounding	190	209	240	283	284	6	11	12	17	11	20	14	38	39	28	164	184	190	227	245
Capsizing	591	639	613	874	778	434	474	432	603	455	20	28	18	71	39	137	137	163	200	284
Flooding	219	173	151	149	154	93	64	62	35	30	3	4	5	8	9	123	105	84	106	115
Sinking	132	174	200	335	351	35	39	44	66	61	3	7	8	15	13	94	128	148	254	277
Fire or Explosion of Fuel	339	337	293	370	366	18	15	15	14	10	70	78	53	101	58	251	244	225	255	298
Other Fire or Explosion	68	49	47	101	85	4	2	4	3	4	6	2	3	20	3	58	45	40	78	78
Collision with Another Vessel	1007	1051	1191	1444	1500	34	50	53	52	45	141	196	140	266	160	829	805	993	1126	1295
Collision with Fixed Object	408	415	337	599	573	51	53	46	60	62	64	91	58	132	112	293	271	233	407	399
Striking Floating Object	197	164	171	190	155	18	15	31	18	15	18	20	11	29	21	161	129	129	143	119
Other Casualty to Vessel	79	67	56	96	189	15	35	20	21	32	7	8	6	21	51	57	24	30	54	106
Falls Overboard	358	352	374	433	362	327	314	317	364	312	30	32	49	62	37	1	6	8	7	13
Falls Within Boat	9	10	3	36	39				5	10	9	8	3	30	24		1		1	5
Struck by Boat or Propeller	58	46	71	108	100	12	13	16	15	21	46	24	55	91	69		9		2	10
Other Personnel Casualty	148	223	195	304	168	85	133	98	145	102	59	62	68	147	55	4	28	29	12	11
Total	3803	3909	3942	5322	5104	1132	1219	1152	1418	1170	499	574	518	1032	679	2172	2116	2272	2872	3255

WEATHER AND WATER CONDITIONS		Total Vessels Involved	Fatalities	Injuries
1974		6449	1446	993
Waters				
	Oceans or Gulf of Mexico	504	111	45
	Great Lakes	257	60	33
	Tidal Waters	1702	240	297
	Inland Waters	3986	1035	708
Water Conditions				
	Calm	3423	467	630
	Choppy	1549	259	216
	Rough	547	196	63
	Very Rough	339	138	31
	Strong Current	299	104	24
	Unknown	292	281	29
Weather				
	Clear	4987	810	784
	Cloudy	659	207	103
	Fog	89	27	20
	Rain	248	78	29
	Snow	17	12	6
	Hazy	129	24	20
	Unknown	292	288	31
Wind				
	None	1103	208	238
	Light	2666	402	476
	Moderate	1372	223	155
	Strong	670	227	50
	Storm	231	75	26
	Unknown	407	311	48
Visibility				
	Good	5120	854	780
	Fair	577	153	98
	Poor	431	137	75
	Unknown	321	302	32